

National Bureau of Standards  
Library, N.W. 1102

MAY 5 1960

PART B  
SOLAR - GEOPHYSICAL DATA

ISSUED  
APRIL 1960

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



## SOLAR - GEOPHYSICAL DATA

### CONTENTS

#### INTRODUCTION

#### I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2300 Mc Solar Flux
- (b) Graph of Sunspot Cycle

#### II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions
- (b) Coronal Line Emission Indices - March 1960

#### III SOLAR FLARES

- (a-d) Optical Observations - March 1960
- (e) Flare Patrol Observations - March 1960
- (f) Subflares - February 1960
- (g-j) Optical Observations - December 1959
- (k) Flare Patrol Observations - December 1959
- (l) Ionospheric Effects (SWF) - February 1960
- (m) Ionospheric Effects (SEA-SCNA-Bursts) - Dec. 1959, Jan. 1960

#### IV SOLAR RADIO WAVES

- (a) 2300 Mc -- Outstanding Occurrences (Ottawa) January 1960
- (b-c) 169 Mc -- Outstanding Occurrences (Nancay) March 1960
- (d) 167 Mc -- Outstanding Occurrences (Boulder) March 1960
- (e-w) 25-580 Mc - Spectrum Observations (Fort Davis) July - August - September 1959

#### V GEOMAGNETIC ACTIVITY INDICES

- (a) C, Kp, Ap, and Selected Quiet and Disturbed Days
- (b) Charts of Kp by Solar Rotations

#### VI RADIO PROPAGATION QUALITY INDICES

##### North Atlantic:

- (a) CRPL Quality Figures and Forecasts
- (b) Graphs Comparing Forecast and Observed Quality
- (c-d) Graphs of Useful Frequency Ranges

##### North Pacific:

- (e) CRPL Quality Figures and Forecasts
- (f) Graphs Comparing Forecast and Observed Quality

#### VII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) IGC 1959 Alerts and SWI



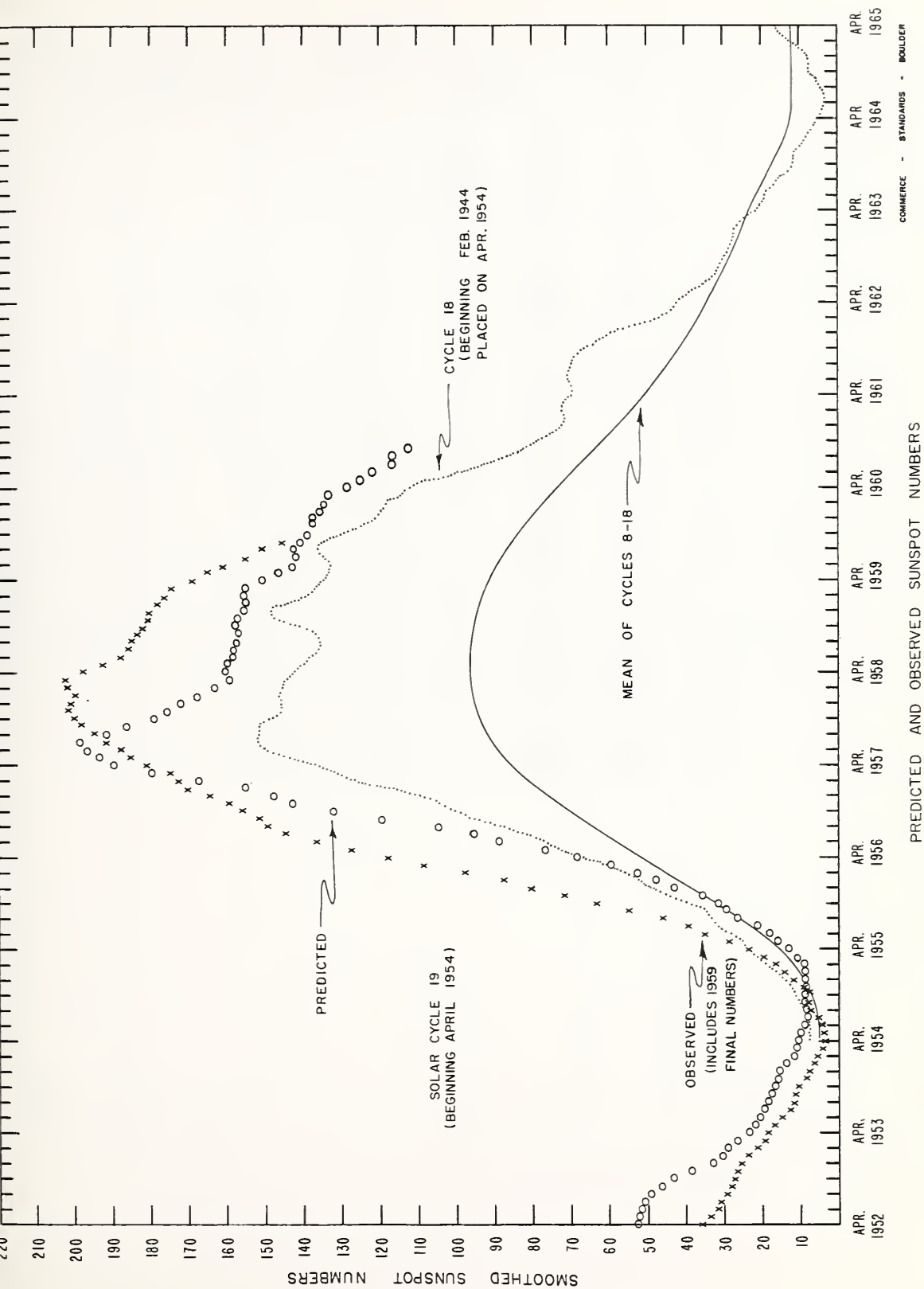
## INTRODUCTION

The descriptive text is published quarterly or whenever context of the report is changed. The last issue in which the text appeared was CRPL-F186 Part B issued February 1960.

## DAILY SOLAR INDICES

Feb. 1960	American Relative Sunspot Numbers $R_A'$
1	186
2	184
3	187
4	164
5	171
6	150
7	128
8	118
9	161
10	157
11	142
12	113
13	103
14	104
15	63
16	66
17	47
18	49
19	40
20	39
21	64
22	59
23	57
24	61
25	52
26	115
27	87
28	64
29	64
Mean:	103.3

Mar. 1960	Zürich Provisional Relative Sunspot Numbers $R_Z$	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	52	137
2	57	137
3	71	138
4	76	139
5	74	140
6	79	135
7	108	139
8	111	141
9	109	143
10	109	132
11	82	132
12	68	129
13	85	135
14	76	134
15	84	137
16	106	142
17	86	140
18	85	133
19	102	137
20	97	143
21	115	145
22	128	150
23	145	154
24	123	158
25	128	157
26	133	...
27	146	...
28	139	175
29	154	181
30	142	193
31	138	182
Mean:	103.5	146.1



## CALCIUM PLAGE AND SUNSPOT REGIONS

MARCH 1960

CMP Mar. 1960	Lat	McMath Plage Number	Return of Region	Calcium Plage Data				Sunspot Data		
				CMP Values Area Int.		History, Age		CMP Values Area Count		History
01.3	N22	5586	*	2600	3.5	ℓ - ℓ	3	270	4	ℓ \ ℓ
02.2	S16	5585	5554	1000	2.5	ℓ \ ℓ	6			
04.0	S17	5587	**	3400	2.5	ℓ - ℓ	3	340	1	ℓ - ℓ
05.5	N10	5588	5563	1400	2.5	ℓ - ℓ	4	170	2	b - ℓ
07.9	N23	5589	5563	2000	2	ℓ - ℓ	4			
09.0	N09	5590	New	700	2.5	ℓ \ ℓ	1	20	1	ℓ \ d
10.5	S01	5591	New	2200	3	ℓ - ℓ	1	160	6	ℓ \ d
11.0	N23	5592	5566	3800	3	ℓ - ℓ	2	310	3	ℓ \ ℓ
11.0	S15	5593	New	3000	3	ℓ - ℓ	1	290	8	ℓ / ℓ
13.6	S23	5596	5572	900	2	ℓ \ ℓ	2			
14.0	N13	5595	5570	2000	2	ℓ - ℓ	3	20	1	ℓ - ℓ
14.6	N07	5597	5574	1200	2	ℓ - ℓ	5	270	6	b / ℓ
16.2	N15	5598	5574	1400	2.5	ℓ - ℓ	5	20	1	ℓ \ d
18.0	N28	5599	+	1800	2.5	ℓ - ℓ	1	150	3	b / ℓ
18.3	N07	5602	5577	1000	2.5	ℓ - ℓ	12	140	4	b / ℓ
19.4	S08	5600	New	4300	3.5	ℓ - ℓ	1	750	15	ℓ \ ℓ
21.0	S13	5603	5578	300	1	ℓ \ d	4			
22.0	N13	5604	5579	3500	3	ℓ - ℓ	5	230	14	ℓ / ℓ
23.1	S18	5605	5580	2000	3.5	ℓ - ℓ	2			
23.8	N04	5606	5581	1200	2.5	ℓ / ℓ	5			
24.0	N21	5607	New	3000	3	ℓ / ℓ	1	850	11	ℓ - ℓ
26.1	S15	5609	++	4500	3	ℓ / ℓ	1	700	7	ℓ / ℓ
26.2	N13	5610	5584	2400	2.5	ℓ - ℓ	8	120	1	ℓ \ ℓ
28.1	N22	5611	5586	2300	2.5	ℓ - ℓ	4			
30.0	S24	5612	5587	2600	2.5	ℓ - ℓ	4			
30.2	S10	5613	5587	2600	2.5	ℓ \ ℓ	4			
30.2	N28	5614	5586	1000	2	ℓ - ℓ	4			
31.6	N11	5615	New	3500	3	ℓ - ℓ	1	1730	48	ℓ / ℓ

COMMERCE - STANDARDS - BOULDER

\* 5555,5556

\*\* 5561,5562

+ New (?) in position of 5575,5576

++ New (?) in position of 5583



MARCH 1960

CMP Mar 1960	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>
1	x	x	x	x	x	x	x	x	x	111	x	x	46	67	x	x
2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6	78a	109a	20a	37a	49a	58a	19a	29a	x	x	x	x	x	26a	x	x
7	79	103	12	23	30	39	10	10	12a	18a	10a	13a	36a	14a	x	33a
8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	103*	140	31	54	79	118	14	28	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	41	56	17	25	76	100	12	30
12	x	x	x	x	x	x	x	x	16	22	7	10	43	48	9	15
13	x	x	x	x	x	x	x	x	27	38	16	22	57	69	19	40
14	x	x	x	x	x	x	x	x	25a	36a	x	x	89a	146a	x	x
15	76	110	x	x	20	37	x	x	20	25	x	x	68	95	x	x
16	x	x	x	x	x	x	x	x	27	53	x	x	77	94	x	x
17	x	x	x	x	x	x	x	x	58	100	17	25	135	192	20	40
18	x	x	x	x	x	x	x	x	71	114	x	x	70	112	x	x
19	x	x	x	x	x	x	x	x	56	101	x	x	53	80	x	x
20	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
21	21a	32a	11a	13a	26a	30a	21a	25a	x	x	x	x	x	x	x	x
22	x	x	x	x	x	x	x	x	67	73	x	x	70	99	x	x
23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	70	108	15	30	39	62	14	18	x	x	x	x	x	x	x	x
26	78	100	21	35	25	42	6	10	x	x	x	x	x	x	x	x
27	86	129	37	75	50	68	17	40	x	x	x	x	x	x	x	x
28	68	97	23a	40a	55	70	10a	16a	32a	44a	7a	8a	42a	62a	10a	22a
29	52	80	9a	14a	71	92	14a	24a	70	99	27	44	61	86	12	15
30	40	52	x	x	85	106	x	x	109	180	x	x	64	86	x	x
31	79	98	21	27	148	200	25	43	x	x	x	x	x	x	x	x

x - no observations.

a - index computed from low weight data.

\* - yellow line observed

Notes: 1. These coronal line intensities, expressed in millionths of equivalent angstroms are believed to be correct to  $\pm 10$  per cent, probable error, according to the calibrations of February-March 1960. All intensities from the Climax and Sacramento Peak observatories during the years 1956-1959, inclusive, if multiplied by the factor 0.60, will be expressed in the same scale to a somewhat lower precision.

Intensities prior to 1956 cannot be compared precisely with those obtained later because of changes in observing and reduction techniques. They may be converted roughly to millionths of equivalent angstroms by use of the table given by Billings and Varsavsky, 1955, Zs. f. Ap. 38, 160.

2. Beginning with the next issue and every three months thereafter we will publish a revised table which will include data from Pic du Midi and Kislovodsk in addition to the Sacramento Peak and Climax data which appear in the table above.

# SOLAR FLARES

MARCH 1960

OBSERVATORY	DATE MAR 1960	OBSERVED UNIVERSAL TIME		LOCATION			DUR- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	MAX. PHASE	APPROX.					MCMATH PLACE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORE. AREA Sq. Deg.		MAX. WIDTH H <sub>g</sub>	MAX. INT. %
					LAT.	MER. DIST.										
{ CAPRI S MCMATH MCMATH MCMATH HAWAII	01	1030 E	1130 D		S17 W70		5580	60 D	1	2	1042	1.00	3.20		Slow S-SWF Slow S-SWF Slow S-SWF	
	01	1240 E	1325 D		N22 W08		5586	45 D	1	1	1245		2.00			
	01	1750	1825 D	1810	N23 W10		5586	35 D	1	1	1810		2.00			
	01	1915	2030		N22 W11		5586	75 1+	1	1	1922		4.00			
	01	1922 E	2050		N21 W17		5586	88 D	2+	2	1922	3.20				
{ WENDEL ONDREJOV CAPRI S ARCETRI SAC PEAK	02	0924	1021 D		S11 E15		5587	57 D	2				10.00		S-SWF	
	02	1111 E	1156 D		N22 W20		5586	45 D	2	1			6.90			
	02	1116 E	1207 D		N24 W18		5586	51 D	2	1	1145	6.00				
	02	1441 E	1510 D		N25 W19		5586	29 D	1	2						
	02	2200 E	2220 D	2204 U	N21 W27		5586	20 D						20		
{ HUANCAYO LOCKHEED HUANCAYO LOCKHEED	04	1507	1521	1510	N03 E78		5591	14	1+	2	1510	3.50	12.00	2.40	S-SWF	
	04	1711	1724	1715	N08 E61		5590	13	1	2	1716	2.10		2.40		10
	04	2041	2120 D	2043	N00 E79		5591	39 D	1	2	2043	.70	2.30	3.00		10
	04	2250	2313	2305	N11 E23		5588	23	1	2	2305	.30				10
	05	0831 E	0836 D		N11 W87		5584	5 D	1	3	0836	.55	2.34			
{ ARCETRI STOCKHOLM STOCKHOLM STOCKHOLM	05	0937 E	1058 D		N11 W87		5584	1	1	3			4.26		S-SWF	
	05	1040 E	1058 D		S00 E62		5591	18 D	1	1	1046	2.00	4.20			
	05	1040 E	1120 D		S10 E70		5593	40 D	2	1	1045	5.00	15.00			
	06	0709	0723	0712	N22 E57		5592	14	1	3	0712			2.60		
	06	0752	0838 D		S08 E66		5593	46 D	1	3	0807	2.00	4.80			
{ CAPRI S ONDREJOV ONDREJOV ONDREJOV ONDREJOV WENDEL ONDREJOV ONDREJOV LOCKHEED	06	0810 E	0822		S09 E64		5593	12 D	1	3	0813			2.20	Slow S-SWF	
	06	0940 E	0954		N20 E57		5592	14 D	1	3	0943			2.80		
	06	1051 E	1110		N09 E63		5591	19 D	1	3	1051			2.50		
	06	1100 E	1123		N20 E54		5592	23 D	1	3	1100		3.00	2.70		
	06	1110 E	1136 D		S09 E66		5593	26 D	1	3				2.40		
{ WENDEL ONDREJOV ONDREJOV ONDREJOV LOCKHEED	06	1201	1211		N22 E53		5592	10 D	1	3	1209			2.40	Slow S-SWF	
	06	1441 E	1450		N09 E61		5591	9 D	1	3	1442	2.00		3.30		
	06	1915	1937	1922	N16 E90		5595	22	1	2	1922					20
	07	0850 E	0949 D		N13 E72		5595	59 D	1+				5.00			
	07	0921 E	0940 D		N12 E72		5595	19 D	1	3						22
{ SAC PEAK MCMATH	07	1810	2010	1820	N00 E36		5591	80	2	2	1918	6.98	5.00		Slow S-SWF	
	07	1914 E	1950 D		S01 E36		5591	36 D	2	1						
	09	0917 E	0929 D		S13 W68		5587	12 D	1							
	09	1418	1528	1448	N01 E11		5591	70	1+	2	1448	3.90	3.00	2.90		
	09	1442 E	1515 D		S02 E11		5591	33 D	1+	2	1509	3.00	3.20			
{ STOCKHOLM HAWAII	09	2100	2112	2104	N21 E44		5595	12	1	3	2104	1.60			S-SWF	
	10	1212	1241		N23 E11		5592	29	1				3.00			
	10	1326	1358 D		N25 E10		5592	32 D	1				3.00			
	10	1716	1756 E	1720	N25 E08		5592	40 D	1	2						34
	10	1716	1810	1719	N24 E07		5592	54	1	3	1719	2.24	2.00			
{ WENDEL WENDEL SAC PEAK MCMATH	12	0816 E	0825 D		S09 W15		5593	9 D	1+	3					S-SWF	
	12	1948	1956	1950	N00 E90		5600	8	1	3	1950	.50				
	12	2050	2116	2054	S14 W22		5593	26	1	3	2054	1.50				
	13	0751	0812		N00 W30		5591	21	1				4.00			
	13	0751	0812		N00 W30		5591	21	1							Slow S-SWF

# SOLAR FLARES

MARCH 1960

OBSERVATORY	DATE MAR 1960	OBSERVED UNIVERSAL TIME		APPROX.		DURA- TION — MINUTES	IN- FOR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	LAT.	MIR. DIST.	MC-MATH PLAGE REGION			TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %
{ WENDEL CAPRI S	14	0736 E	0811 D	S10	W46	5593	2	1	0758	7.00	8.00		
{ WENDEL CAPRI S	14	0754 E	0836 D	S09	W41	5593	2				9.50		
{ WENDEL CAPRI S	14	1404 E	1422 D	S09	W50	5593	1	2	1505	5.00	3.00		
{ HUANCAYO SAC PEAK	14	1445 E	1538 D	S04	W50	5593	2				7.70		
{ HUANCAYO SAC PEAK	14	1450	1458 D	N01	W46	5591	8	2	1454	2.90	3.40	2.70	16
{ HUANCAYO CAPRI S	14	1452	1514	N00	W52	5591	22	2		2.24			
{ HUANCAYO CAPRI S	14	1519 E	1616 D	S07	W47	5593	57	2	1519	2.00	2.90		20
{ LOCKHEED CAPRI S	14	2149	2325	S07	E56	5600	96	2	2215	2.40			18
{ SAC PEAK HAWAII	14	2200	2252	S07	E57	5600	52	2	2215	2.78			
	14	2200	2302	N04	E55	5602	62	3	2216	1.10			
CAPRI S	15	0921 E	0951 D	S10	E54	5600	30	2	0930	2.50	4.20		
CAPRI S	15	1017	1033 D	S10	E54	5600	16	2	1020	2.00	3.40		
CAPRI S	15	1054 E	1116 D	S08	E56	5600	22	2	1115	3.00	5.30		
HUANCAYO	15	1444	1459	S11	E54	5600	15	2	1446	1.20	2.00	3.20	
HUANCAYO	17	1616	1636	N04	W29	5597	20	2	1620	2.50	2.70	3.90	S-SWF
HUANCAYO	17	1908	1935	N05	W33	5597	27	2	1912	2.90	3.50	2.50	
ARCETRI	18	1441 E	1458 D	N05	W49	5597	17	3	1458	1.65	2.97		
WENDEL	20	1421 E	1501 D	N23	E45	5607	40	2			5.00		
WENDEL	20	1613 E	1639 D	N18	E17	5604	26	2			3.00		
STOCKHOLM	21	1041 E	1100 D	N22	E32	5607	19	3	1145	1.80	2.40		
{ WENDEL STOCKHOLM	21	1527	1552 D	N23	E34	5607	25	3	1538	1.80	5.00		
{ HUANCAYO HAWAII	21	1535 E	1551 D	N20	E32	5607	16	3	1538	1.60	2.40	2.60	
HAWAII	21	1952	2114	N21	E31	5607	17	3	2008	1.30	2.10		
HAWAII	21	2038	2102	N22	E32	5607	82	3	2040	.80			
HUANCAYO	21	2059 E	2124 D	N21	E90	5611	24	3	2059	1.60	2.10	3.30	
HAWAII	21	2306	2344	N23	E30	5607	25	2	2308	1.80			
CAPRI S	22	0617 E	0643 D	N28	E22	5607	38	3			3.50		
WENDEL	22	0748 E	0755 D	N22	E22	5607	26	3	0631	3.00	3.00		
ARCETRI	22	0846 E	0909 D	N20	W57	5599	7	2					
ARCETRI	22	0900	0909 D	N25	E78	5611	23	2					
{ STOCKHOLM CAPRI S	22	0903 E	0907 D	N20	W60	5599	9	2	0904	.80	2.40		
	22	1314	1342 D	N22	E17	5607	28	2	1323	2.00	2.20		
{ WENDEL ARCETRI	23	0834	0902 D	S12	E43	5609	28	2			3.00		
{ WENDEL ARCETRI	23	0837 E	0851 D	S13	W57	5600	14	3					
WENDEL	23	1231 E	1248 D	S11	E41	5609	39	3			3.00		
WENDEL	23	1301	1325 D	N21	E04	5607	17	2			3.00		
WENDEL	23	1509	1521	N19	W23	5604	24	2			3.00		
	24	0643 E	0703 D	S08	E59	5609	12	2			3.00		
WENDEL	24	0815 E	0844 D	S24	E75	5612	20	2			3.00		
WENDEL	24	0934	1032 D	N17	W05	5607	29	2			4.00		
{ ONDREJOV WENDEL	24	1012 E	1023	N16	W33	5604	58	3	1013		5.00	2.30	
ONDREJOV	24	1055	1124 D	N16	W33	5604	11	3			6.00		
	24	1124	1131	S10	W65	5600	29	3	1127			3.50	

# SOLAR FLARES

MARCH 1960

OBSERVATORY	DATE MAR 1960	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.				TIME — UT	MEAS. AREA Sq. Deg.	CORR. Sq. Deg.	MAX. WIDTH Hg	
{ WENDEL ONDREJOV	24	1210 E	1214 D		S24 S25	E73 E72	4 D	1	3	1212		4.00	2.20	
WENDEL	24	1210	1215				5	1						
{ WENDEL ONDREJOV	25	0659	0724 D		N12 N17	E07 W44	25 D	1				3.00		
{ WENDEL ONDREJOV	25	0858 E	0912 D		N18 N18	W45 W45	14 D	1				3.00		
{ WENDEL ONDREJOV	25	0928 E	0938	0932	N18 N18	W45 W45	10	1	3	0932			2.20	
{ STOCKHOLM	25	0952 E	1022	1008	N17 N17	W45 W45	30 D	1+	3	1008			2.80	
{ WENDEL WENDEL	25	0958 E	1020 D		N18 N18	W47 W21	22 D	1	3	0958	1.90	2.90		
	25	1445	1501		N18 N12	W21 E04	16	1				3.00		
	25	1504	1525				21	1+				5.00		
WENDEL	26	0712 E	0735 D		S12 N16	W78 W57	23 D	1				3.00		
WENDEL	26	0924 E	0936 D		N16 N25	W57 W32	12 D	1				3.00		
ONDREJOV	26	0931 E	0938		N25 S04	W32 W75	7 D	1	3	0932			2.60	
ONDREJOV	26	1400 E	1407 D		S04 N23	W75 E03	7 D	1	3	1502			2.20	
MC MATH	26	2035	2145 D	2105	N23 N22	E03 E05	70 D	1	3	2105		3.00		
{ SAC PEAK	26	2038	2210	2108	N22 N26	E05 W00	92	1	3		3.84			19
HAWAII	26	2040	2046 D		N26 N25	W00 E06	6 D	1	2	2044				
LOCKHEED	26	2143 E	2205	2143 E	N25 N24	E06 W01	22 D	1	1	2143	1.80	2.00		10
{ SAC PEAK	26	2222	2258 D	2236	N24 N26	W01 W02	36 D	1	3	2240	2.50			18
LOCKHEED	26	2222 U	2330 U	2240 U	N26 N24	W02 W07	68 D	1	2	2310	2.10	1.60		20
HAWAII	26	2310 E	2310 D					1						
HAWAII	27	0150 E	0156 D		N12 N19	W51 W52	6 D	1+	1	0156	2.40			
WENDEL	27	0634 E	0823 D		N19 N20	W52 W50	109 D	2				10.00		
ONDREJOV	27	0736 E	0840 D		N20 N23	W50 W42	64 D	1+	3	0743			4.10	
WENDEL	27	0805 E	0823 D		N23 N20	W42 W53	18 D	1+			5.00			
WENDEL	27	0912 E	0923 D		N20 S27	W53 E46	11 D	1+			7.00			
ARCETRI	27	0912 E	0931 D		S27 N23	E46 W50	19 D	1	2		4.00			
ARCETRI	27	0914 E	0915 D		N23 S28	W50 E44	1 D	1+	2					
SAC PEAK	27	0914 E	0915 D		S28 N21	E44 W57	1 D	1	2					
	27	2226	2310	2236			44	1	2	2.22				17
WENDEL	28	0708 E	0726		S11 S10	W19 W24	18 D	1+				5.00		
{ STOCKHOLM	28	1317 E	1349 D		S10 S12	W24 W28	32 D	1	2	1327	1.80			
{ WENDEL	28	1321 E	1349 D		S12 S12	W28 W28	28 D	1				2.00		
{ CAPRI S	28	1324 E	1349 D		S12 N12	W28 E40	25 D	1	2	1330	2.00			
WENDEL	28	1453 E	1538		N12 N13	E40 E37	45 D	1+				7.00		
{ CAPRI S	28	1457 E	1530 D		N13 N11	E37 E42	33 D	1	2	1510	2.00			
{ STOCKHOLM	28	1458 E	1520 D		N11 N11	E42 E43	22 D	1+	2	1513	2.60	2.80		
SAC PEAK	28	1506	1532	1510	N11 N12	E43 E42	26	1	3		2.52			17
SAC PEAK	28	1634	1642	1638	N12 N11	E42 E39	8	1	3	2.22				14
{ SAC PEAK	28	2042	2150 U	2054	N11 N18	E39 E34	68 D	2	3	2058	8.38			30
HAWAII	28	2048	2144	2058			56	2	3		2.70			
{ LOCKHEED	29	0024	0048	0027	N11 N17	E39 E34	24	1	2	0027	2.00			20
HAWAII	29	0026 E	0040	0028	N17 N12	E34 E31	14 D	1	3	0028	1.10			
ONDREJOV	29	0705 E	0852	0710	N12 N10	E31 E29	107 D	3	2				3.50	
{ STOCKHOLM	29	0820 E	0952 D		N10 N12	E29 E28	32 D	2+	3	0840	6.60	8.00		
{ STOCKHOLM	29	1007 E	1100 D		N12 N13	E29 E28	53 D	2	3	1007	5.00			
WENDEL	29	1025 E	1051 D		N13 N22	E28 W77	26 D	1+				7.00		
WENDEL	29	1100 E	1110 D		N22 N12	W77 E30	10 D	1				3.00		
WENDEL	29	1140 E	1211				31 D	1+				6.00		

Slow S-SWF

S-SWF

S-SWF

S-SWF

COMMENCE - STANDARDS - BOLDER



# SOLAR FLARES

MARCH 1960

OBSERVATORY	DATE MAR 1960	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POB- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	APPROX. LAT.	MER. DIST.				MCNATH PLACE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H <sub>30</sub>	MAX. INT. %
{ SAC PEAK ONDREJOV CAPRI S LOCKHEED LOCKHEED SAC PEAK SAC PEAK	29	1516	1532	1520	N12 E30 N10 E29 N11 E28 N12 E27 N12 E27 N12 E26 N12 E26	5615 5615 5615 5615 5615 5615 5615	16 11 D 113 D 92 92 2 2	1 1 2 2 2 2 2	3 3 1 2 2 2 2	2.92 5.00 5.00 5.10 5.10 7.68	5.80	3.10	24 30 30 32	S-SWF	
	29	1518	1529												
	29	1522	1705 D												
	29	2038	2210	2048											
	29	2038	2210	2131											
	29	2040	2158	2048											
	29	2040	2158	2130											
	29	2040	2158												
	29	2040	2158												
	29	2040	2158												
{ STOCKHOLM STOCKHOLM HUANCAYO MCMATH SAC PEAK ARCETRI CAPRI S SAC PEAK ARCETRI CAPRI S R O HERST SAC PEAK CAPRI S	30	0857	0908 D		N08 E20	5615	11 D	1	2	0859	2.00	2.20		Slow S-SWF	
	30	1008	1028 D		N08 E16	5615	20 D	2	2	1011	5.00	5.50			
	30	1355	1420	1355	N12 E17	5615	25 D	1	1	1355	3.40	3.70	2.70		
	30	1434	1438 D		N10 E17	5615	4 D	1	1	1438	2.00				
	30	1434	1448	1438	N10 E17	5615	14 D	1	2	2.18	2.70		18		
	30	1435	1447		N10 E20	5615	12	1	4	2.50	2.70				
	30	1439	1445 D		N12 E15	5615	6 D	1	2	1.437	3.50	3.70			
	30	1455	1858	1533	N12 E13	5615	243	2	2	7.38	2.00		35		
	30	1501	1514 D		N15 E12	5615	13 D	1	4	1.82	2.00				
	30	1502	1654 D		N12 E09	5615	112 D	2	3	6.00	6.00				
{ LOCKHEED SAC PEAK MCMATH HAWAII	30	1520	1625 D		N11 E15	5615	65 D	2+	4	1.543	8.00			Slow S-SWF	
	30	1532	1715	1550	N12 E12	5615	103 D	1+	3	2.50	2.80		90		
	30	1642	1728	1648	N25 W08	5614	46	1	2	4.46			15		
	30	1649	1654 D		N24 W14	5614	5 D	1	1	4.00	4.40				
	30	1734	1900 D		N11 E13	5615	86 D	1	1	1.745	3.00				
	30	1853	2030 D	1855	N09 E14	5615	97 D	1+	2	5.90	6.50	2.90	20		
	30	1947	2050 U	1953	N11 E09	5615	63 D	1	2	2.50			20		
	30	1947	2050 U	2020	N11 E09	5615	63 D	1	2	2.50			20		
	30	1950	2034	2016	N09 E09	5615	44	1	2	2.50			17		
	30	1953	2030 D		N11 E09	5615	37 D	1	1	1.953	3.00				
{ HAWAII HAWAII STOCKHOLM ONDREJOV STOCKHOLM ARCETRI STOCKHOLM SAC PEAK LOCKHEED LOCKHEED HAWAII HAWAII	30	1956	2042 D		N12 E05	5615	46 D	2	2	3.10				Slow S-SWF	
	31	0026	0032 D	0028	N12 E10	5615	6 D	1	3	1.00			18		
	31	0847	1127 D		N11 E02	5615	100 D	2	3	11.00	11.60	2.00	20		
	31	1150	1237 D		N08 W01	5615	47 D	1+	3	1.152			10		
	31	1157	1318 D		N11 E01	5615	81 D	2	3	1.236					
	31	1315	1328 D		N11 W02	5615	13 D	2	3	1.315	11.60				
	31	1357	1428 D		N12 E01	5615	31 D	2	3	6.00	6.00				
	31	1620	1752	1706	N11 W03	5615	92	1+	2	8.00	8.40				
	31	1640	1800	1700	N12 W01	5615	80	2	2	4.74					
	31	2040	2140	2100	S28 E10	5617	60	1	2	5.00					
{ LOCKHEED HAWAII HAWAII HAWAII	31	2042	2140 D	2058	S26 E13	5617	58 D	1	3	2.50					
	31	2058	2120 D	2058	N09 W08	5615	22 D	1+	3	1.80	2.30				
	31	2058	2120 D	2300	N10 W09	5615	8 D	1	3	2.058	1.20				
	31	2258	2306 D	2300	N10 W09	5615	8 D	1	3	2.300					

COMMERCE - STANDARDS - SOLAR

CAPRI G ANACAPRI - GERMAN  
CAPRI S ANACAPRI - SWEDISH  
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE  
KIEV\* KIEV UNIVERSITY  
KODAIKANAL KODAIKANAL  
KRASNAYA KRASNAYA PAKHRA  
LOCKHEED LOS ANGELES

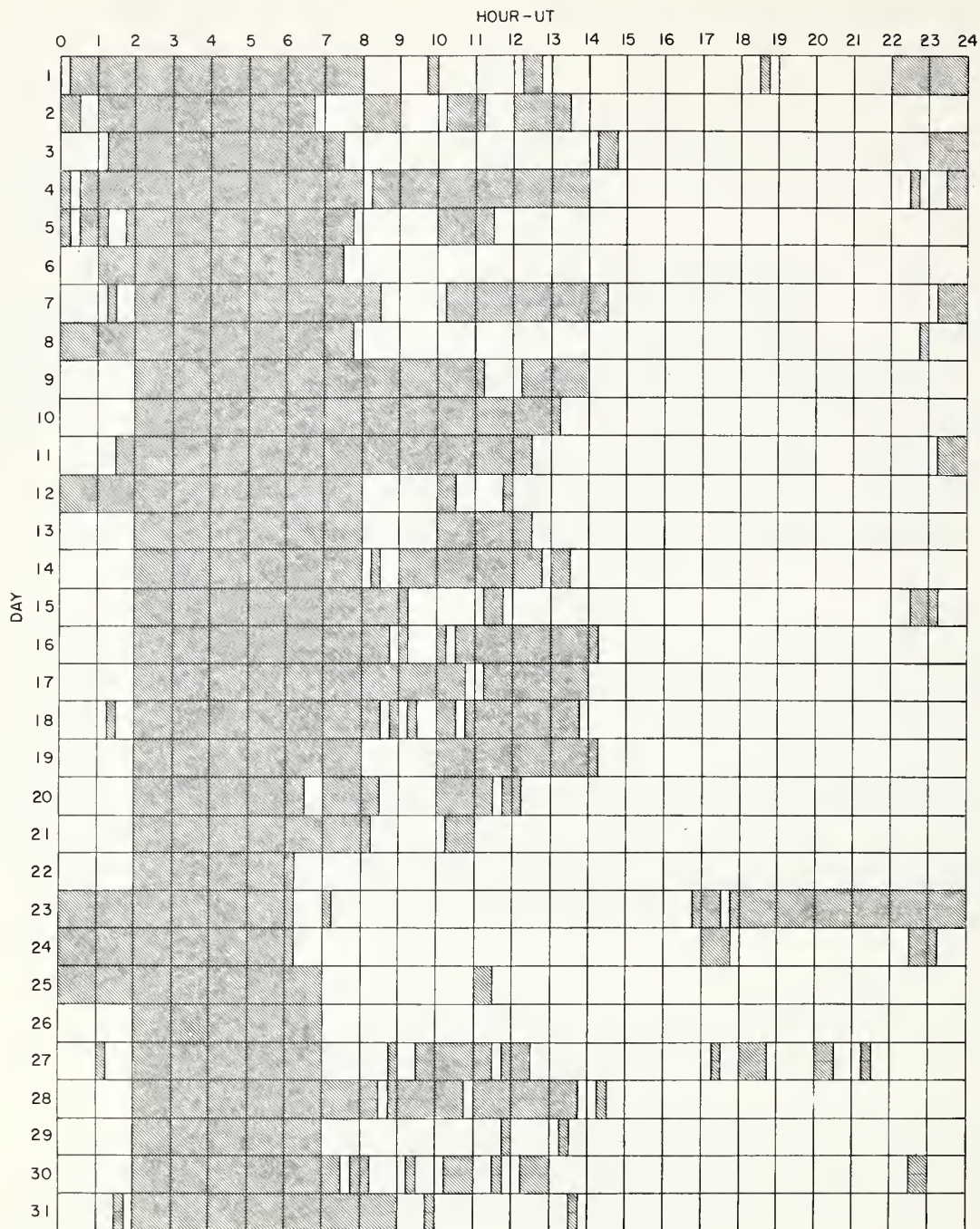
MOSCOW-G MOSCOW - GAISH  
R O EDIN ROYAL OBSERVATORY, EDINBURGH  
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX  
SAC PEAK SACRAMENTO PEAK  
SCHAUTINS SCHAUTINSLAND  
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

SAC PEAK: ALL VALUES IN MAX. INT. COLUMN ARE  
ARBITRARY UNITS (0-40), NOT PERCENT  
OF CONTINUOUS SPECTRUM.  
E - LESS THAN  
D - GREATER THAN  
U - APPROXIMATE  
□ - NOT REPORTED

LOCKHEED OBSERVATIONS: ALL VALUES IN THE MAXI-  
MUM INTENSITY COLUMN ARE ARBITRARY UNITS ON A  
SCALE OF 10 TO 40 - NOT PERCENT OF THE CONTINUOUS  
SPECTRUM.

## INTERVALS OF NO FLARE PATROL OBSERVATIONS

MARCH 1960



Stations Include:

COMMERCE - STANDARDS - BOULDER

Anacapri (Swedish)	McMath
Arcetri	Ondrejov
Hawaii	Royal Greenwich Observatory
Huancayo	Herstmonceux
Lockheed	Sacramento Peak

Noted as follows: Date-Universal Time-Coordinates

FEBRUARY 1960

ARCETR1	01 0957 E	S12 W11	HAWAII	09 0002	S15 E54	LOCKHEED	17 1850	N19 W39
SAC PEAK	01 1520	N08 W21	HAWAII	09 0020	S20 W63	LOCKHEED	17 2050	N21 W50
SAC PEAK	01 1552	S14 W14	WENDEL	09 0733 E	S20 W35	LOCKHEED	17 2100	N12 W01
SAC PEAK	01 1650	S13 W14	WENDEL	09 1049 E	S19 W38	SAC PEAK	17 2126 U	N09 W01
SAC PEAK	01 1726	N08 W58	WENDEL	09 1108 F	N02 W19	SAC PEAK	18 1508	N18 W31
SAC PEAK	01 1746	S18 W14	WENDEL	09 1211 E	S25 E71	LOCKHEED	18 1616 E	N28 W50
SAC PEAK	01 1820	N10 W55	WENDEL	09 1231 E	S14 W47	LOCKHEED	18 1645	N28 W36
SAC PEAK	01 2002	N12 W57	WENDEL	09 1446 E	N02 E29	HAWAII	18 1922	N05 W22
SAC PEAK	01 2124	N10 W57	WENDEL	09 1448 F	S14 W42	HAWAII	18 2034	N15 W50
HUANCAYO	01 2129 E	N09 W50	WENDEL	09 1451 E	S18 W44	LOCKHEED	18 2048 U	N24 W00
SAC PEAK	01 2218	N20 E08	WENDEL	09 1515 E	S17 W48	HAWAII	18 2114	N12 W40
SAC PEAK	01 2230	S18 W11	HUANCAYO	09 1515 E	S17 W46	LOCKHEED	18 2156	N24 W00
ARCETR1	02 1220 E	N21 E02	WENDEL	09 1555 E	N02 W19	LOCKHEED	19 1543 F	N11 W59
MCWATH	02 1518	N12 W12	LOCKHEED	09 1831	S22 W42	SAC PEAK	19 1558 F	N10 W59
LOCKHEED	02 1630	S14 E34	LOCKHEED	09 1838	S21 E72	LOCKHEED	19 1632	N10 F90
LOCKHEED	02 1645	N07 W52	LOCKHEED	09 1919	S14 W48	LOCKHEED	19 1750	N10 E90
LOCKHEED	02 1640	N27 W01	LOCKHEED	09 1922	S23 E72	LOCKHEED	19 1830	N10 E77
LOCKHEED	02 1710	S15 W29	LOCKHEED	09 1922	S23 E72	LOCKHEED	19 1830	N10 E77
LOCKHEED	02 1747	N10 W15	LOCKHEED	09 1922	S23 E72	LOCKHEED	19 1945	N11 W59
MCWATH	02 1825	N20 W01	LOCKHEED	09 1928	S19 W72	LOCKHEED	19 2014	N10 W30
LOCKHEED	02 1825	N27 W06	HAWAII	09 1940	S17 W51	LOCKHEED	19 2038	N11 E90
MCWATH	02 1849	N12 W15	LOCKHEED	09 2019	S14 W48	LOCKHEED	19 2140 F	S03 W65
LOCKHEED	02 1855	N20 W06	HUANCAYO	09 2102	S19 W68	LOCKHEED	19 2141	N11 E90
LOCKHEED	02 2005	N16 W16	LOCKHEED	09 2147	S24 E76	LOCKHEED	19 2230	N11 W59
LOCKHEED	02 2014	S16 W06	HAWAII	09 2148	S22 E75	LOCKHEED	19 2309	N11 E90
MCWATH	02 2015 E	N13 W15	LOCKHEED	09 2205	N32 E22	LOCKHEED	19 2347	N21 W40
LOCKHEED	02 2059	N09 W18	HAWAII	09 2206	N30 E25	LOCKHEED	20 1730	N08 E69
LOCKHEED	02 2059	N09 W18	LOCKHEED	09 2215	N32 E22	LOCKHEED	20 1730	N08 E69
LOCKHEED	02 2133	S12 W29	WENDEL	10 0912 E	N17 W20	LOCKHEED	20 1730	N08 E69
LOCKHEED	02 2156	N09 W20	WENDEL	10 0915 F	N22 E29	LOCKHEED	20 1730	N08 E69
LOCKHEED	02 2227	N10 W70	WENDEL	10 1139 F	N20 E11	LOCKHEED	20 1845	N10 W75
LOCKHEED	02 2249	N16 W11	WENDEL	11 0741 F	N07 E53	LOCKHEED	20 1907	N08 E69
LOCKHEED	02 2243	S14 W70	LOCKHEED	11 1643	S14 W73	SAC PEAK	20 1908	N08 E68
LOCKHEED	03 0001	N08 W49	LOCKHEED	11 1705	S18 E04	LOCKHEED	20 1906	N10 W75
LOCKHEED	03 0025	S14 W30	LOCKHEED	11 1738	N14 E41	MCWATH	20 2007 E	N14 W55
LOCKHEED	03 0035 U	S18 W38	LOCKHEED	11 1811	N09 E41	LOCKHEED	20 2019	N10 W75
ARCETR1	03 0913 E	N10 W29	LOCKHEED	11 2034	N10 E48	LOCKHEED	20 2047	N10 W75
WENDEL	03 0920	N02 W46	LOCKHEED	11 2210	S21 E11	LOCKHEED	20 2045	N10 W75
WENDEL	03 1159 E	N10 W21	LOCKHEED	11 2223	S23 E44	LOCKHEED	20 2123	N08 E69
WENDEL	03 1214 E	N09 W23	LOCKHEED	11 2350	S18 W70	LOCKHEED	20 2212	N10 W75
WENDEL	03 1304 E	S17 W40	LOCKHEED	12 1630	N15 E90	LOCKHEED	20 2212	N10 W75
MCWATH	03 1335 E	S14 W37	LOCKHEED	12 1714	N15 E90	LOCKHEED	20 2347	N08 E69
WENDEL	03 1335 F	N14 W45	SAC PEAK	12 1718	N14 E90	WENDEL	21 1031 E	N07 E58
WENDEL	03 1420 F	N08 W75	LOCKHEED	12 1732	N12 E78	WENDEL	21 1417 E	S19 E43
MCWATH	03 1535	N08 W75	LOCKHEED	12 1814	N10 F60	WENDEL	21 1431 F	S19 E43
MCWATH	03 1549	N06 W64	LOCKHEED	12 1859	N08 E25	WENDEL	21 1508	N06 E57
MCWATH	03 2004	S15 W38	LOCKHEED	12 1950	N10 F60	WENDEL	21 1525 F	N07 F44
MCWATH	03 2035	S11 W42	LOCKHEED	12 2023	N15 E90	LOCKHEED	21 1700 U	N04 F44
MCWATH	04 1345 E	S14 E02	LOCKHEED	12 2113	N09 E28	LOCKHEED	21 1722	N06 E58
MCWATH	04 1359	N12 W38	LOCKHEED	12 2139	N09 E28	LOCKHEED	21 1732	N06 E58
MCWATH	04 1427	S14 W48	LOCKHEED	12 2143	N10 E16	LOCKHEED	21 1753	N06 E36
MCWATH	04 1436	N16 E02	LOCKHEED	12 2151	S24 E29	LOCKHEED	21 1753	N06 E36
MCWATH	04 1447	N12 W38	LOCKHEED	12 2326	N10 E25	LOCKHEED	21 1820	N06 E36
MCWATH	04 1459	S16 E02	HAWAII	12 2334 F	N10 E25	LOCKHEED	21 1855	N06 E36
MCWATH	04 1501	S12 W52	LOCKHEED	13 0020	S11 W90	LOCKHEED	21 1855	N06 E36
SAC PEAK	04 1505 F	S12 W53	LOCKHEED	13 0031	S18 W90	LOCKHEED	21 1907	N27 F07
HUANCAYO	04 1521 E	S13 W47	WENDEL	13 1041 F	N12 E21	LOCKHEED	21 2148	N12 W00
MCWATH	04 1557	S16 E01	WENDEL	13 1056 F	N22 W23	LOCKHEED	21 2250	N07 E52
MCWATH	04 1606	S16 E00	WENDEL	13 1056 E	S24 E74	SAC PEAK	22 1602	N08 W05
SAC PEAK	04 1614	S15 W55	MCWATH	13 1430 F	N10 E05	LOCKHEED	22 1615 U	N04 E61
MCWATH	04 1722	S13 W52	SAC PEAK	13 1602	N12 E22	LOCKHEED	22 1638	N28 W05
LOCKHEED	04 1725 E	S15 W53	MCWATH	13 1645 F	N20 W76	LOCKHEED	22 1732	N10 E62
MCWATH	04 1815	S16 E24	MCWATH	13 1742 F	N20 W26	LOCKHEED	22 1746	N05 E41
MCWATH	04 1838	N08 W87	LOCKHEED	13 1815	N10 E48	LOCKHEED	22 1746	N05 E41
LOCKHEED	04 1839	N09 W00	LOCKHEED	13 1904	N12 E20	LOCKHEED	22 1826	N05 E41
LOCKHEED	04 1840	N14 E57	HAWAII	13 1906	N15 E18	LOCKHEED	22 2020	N10 E62
MCWATH	04 1841	N14 E54	LOCKHEED	13 1938	N14 E11	LOCKHEED	22 2315	N06 E34
SAC PEAK	04 1926	N08 W43	SAC PEAK	13 1940 E	N16 E32	LOCKHEED	22 2315	N06 E34
LOCKHEED	04 2031	N16 W84	LOCKHEED	13 2050	N22 W10	HUANCAYO	23 1448	N22 W18
SAC PEAK	04 2032	S14 W56	LOCKHEED	13 2250	N14 E10	LOCKHEED	23 1816	N05 E29
LOCKHEED	04 2035	S14 W56	LOCKHEED	14 1236 E	N11 E11	LOCKHEED	23 1830	N08 E28
SAC PEAK	04 2102	S15 W03	WENDEL	14 1253 F	N08 E13	LOCKHEED	23 2125	N08 E48
SAC PEAK	04 2136	S14 W54	MCWATH	14 1648 E	N12 F06	LOCKHEED	23 2125	N08 E48
SAC PEAK	04 2140	N08 W00	SAC PEAK	14 1640	N12 F06	LOCKHEED	23 2125	N08 E48
LOCKHEED	04 2202 F	S18 W51	LOCKHEED	14 1714	N12 F08	LOCKHEED	23 2125	N08 E48
HAWAII	04 2270 E	S23 W53	LOCKHEED	14 1735 U	N11 F41	LOCKHEED	23 2125	N08 E48
HAWAII	04 2250 E	S18 W02	SAC PEAK	14 1738	N10 E38	LOCKHEED	23 2125	N08 E48
LOCKHEED	04 2315 U	N08 W42	MCWATH	14 1738 F	N10 E40	HAWAII	23 2344	N16 F45
LOCKHEED	04 2330 E	S19 W56	MCWATH	14 1746	S24 E06	LOCKHEED	24 0012	N07 E47
LOCKHEED	04 2330	S17 W55	SAC PEAK	14 1746	S25 E05	HAWAII	24 0014	N16 E45
HAWAII	05 0000 E	N05 W46	LOCKHEED	14 1908	N12 E07	LOCKHEED	24 0010	S21 E13
SAC PEAK	05 1505 E	S15 E13	HAWAII	14 1918 E	N15 E05	HAWAII	24 0104 E	S18 E17
LOCKHEED	05 1737	S15 E06	SAC PEAK	14 1922 E	N12 F07	HAWAII	24 0146 E	N21 W31
LOCKHEED	05 1738	N18 E18	HAWAII	14 2038	N11 E05	WENDEL	24 1444 E	N08 E18
LOCKHEED	05 1742	S15 W12	LOCKHEED	14 2040	N11 E06	MCWATH	24 1445	N06 E15
SAC PEAK	05 1832	N10 E60	LOCKHEED	14 2058	N17 F01	MCWATH	24 1512 F	N05 E17
SAC PEAK	05 1942	N11 W57	SAC PEAK	14 2102 F	N15 F02	MCWATH	24 1628	N08 E19
SAC PEAK	05 2046	N16 W16	HAWAII	14 2104	N11 W04	LOCKHEED	24 1809	N04 F77
LOCKHEED	05 2048 U	N11 W55	LOCKHEED	14 2141	N09 E10	LOCKHEED	24 1842	N07 E12
SAC PEAK	05 2054	N11 W56	SAC PEAK	14 2142	N08 E10	HAWAII	24 1844	N05 F07
SAC PEAK	05 2144	N11 W56	HAWAII	14 2146 E	N09 E08	LOCKHEED	24 1911	N07 E57
SAC PEAK	05 2146	N16 E09	LOCKHEED	14 2205	N08 E00	LOCKHEED	24 2125	N06 E34
SAC PEAK	05 2218	S17 W18	LOCKHEED	14 2252	N11 E05	LOCKHEED	24 2222	N07 E13
HAWAII	05 2326	S16 W15	LOCKHEED	14 2345	S24 E03	LOCKHEED	24 2242	N07 E13
HAWAII	06 0040 E	S16 W16	WENDEL	15 1345 E	N26 W30	LOCKHEED	24 2307	S70 E00
SAC PEAK	06 1834	N20 F26	MCWATH	15 1347	N22 W43	LOCKHEED	24 2347	N12 E13
SAC PEAK	06 1900	N20 E26	WENDEL	15 1415 E	N13 W07	LOCKHEED	25 1701	N13 E25
HAWAII	06 1904	N28 E23	MCWATH	15 1415 E	N13 W07	SAC PEAK	25 2038	N11 E22
SAC PEAK	06 2008	S14 W05	LOCKHEED	15 1730	S18 W20	ARCETR1	26 0916 F	S20 W21
LOCKHEED	06 2009	S17 W05	SAC PEAK	15 1750	N09 E21	SAC PEAK	26 1612	N10 W07
LOCKHEED	06 2030	N11 W49	LOCKHEED	15 1750	N09 W20	SAC PEAK	26 2206 E	N06 E11
SAC PEAK	06 2030	N11 W70	LOCKHEED	15 1755	S14 W17	NEUDON	27 0830	S05 E53
LOCKHEED	06 2056	N14 W66	LOCKHEED	15 1826	N16 W14	LOCKHEED	27 2215	S26 E76
HAWAII	06 2056	N10 W69	LOCKHEED	15 1830	N25 W47	WENDEL	28 1023 E	N09 W04
SAC PEAK	06 2110	S13 W05	LOCKHEED	15 1842	N25 W47	SAC PEAK	28 1442	N07 W15
LOCKHEED	06 2111	S12 W06	LOCKHEED	15 2041	N21 W55	NEUDON	28 1542	N22 E18
HAWAII	06 2112	S14 W04	LOCKHEED	15 2043	N24 W50	SAC PEAK	28 1542	N25 E18
LOCKHEED	06 2132	S12 W05	LOCKHEED	15 2120	N11 W09	SAC PEAK	28 1542	N25 E18
LOCKHEED	07 0015	S15 W04	LOCKHEED	15 2155	N19 W03	SAC PEAK	28 1640	S21 W57
HAWAII	07 0016	S16 W02	SAC PEAK	15 2158	N18 W03	SAC PEAK	28 1648	N24 E14
WENDEL	07 0910	N22 F23	SAC PEAK	15 2242	S24 W12	SAC PEAK	28 1944	N24 E16
SAC PEAK	07 1526	N25 E50	LOCKHEED	15 2244	N21 W58	SAC PEAK	28 2116	N23 E15
SAC PEAK	07 1604	N12 W87	LOCKHEED	16 0011	N26 W54	SAC PEAK	28 2154	N24 E14
SAC PEAK	07 1738	N31 E53	LOCKHEED	16 1729	S21 W70	WENDEL	29 0829 E	N22 E08
HUANCAYO	07 1848 E	S18 W90	LOCKHEED	16 1729	N21 W70	WENDEL	29 1029 E	N22 E07
SAC PEAK	07 2001 E	N19 E15	LOCKHEED	16 1733	N12 W26	HUANCAYO	29 1425 E	S24 W63
SAC PEAK	07 2156	N20 W78	LOCKHEED	16 1821	N14 W26	SAC PEAK	29 1722	S25 E54
WENDEL	08 1151 E	S20 E58	LOCKHEED	16 1831	N21 W70	HUANCAYO	29 2020	S27 W65
WENDEL	08 1245 E	N25 W57	LOCKHEED	16 1848	N20 W71	HAWAII	29 2018	S08 E43
WENDEL	08 1249 E	N14 E00	LOCKHEED	16 1950	N21 W70	HUANCAYO	29 2030	S17 F43
SAC PEAK	08 1546	S25 F43	LOCKHEED	16 1959	N21 W70	WENDEL	29 0829 E	N22 E08
SAC PEAK	08 1556	S15 W27	LOCKHEED	16 2047	N21 W70	WENDEL	29 1029 E	N22 E07
SAC PEAK	08 1634	N11 E07	LOCKHEED	16 2047	N21 W70	HUANCAYO	29 1425 E	S24 W63
SAC PEAK	08 2020	S16 W10	LOCKHEED	16 2136	N21 W70	SAC PEAK	29 1722	S25 E54
SAC PEAK	08 2234	S14 W57	LOCKHEED	16 2140	S07 W27	HUANCAYO	29 2020	S27 W65
HAWAII	08 2236	S19 W59	LOCKHEED	16 2225	N24 W60	HAWAII	29 2018	S08 E43
HAWAII	0							



## SOLAR FLARES

DECEMBER 1959

OBSERVATORY	DATE DEC 1959	OBSERVED UNIVERSAL TIME			LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	MEAS. PLAGE REGION				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH He		MAX. INT. %	
PIRCULI GOOD HOPE CLIMAX CLIMAX	01	1056 E	1112 D	1107 U	N08 W04		5476	16 D	2	3	1107	7.28	7.43		75	Slow S-SWF S-SWF	
	01	1147	1227	1157	N12 E01		5476	40	1		1157	2.80	2.80				
	01	1522 E	1616		N09 W07		5476	54 D	1		1531	3.40					
	01	1641	2035	1709	N09 W04		5476	234	1		1709	3.10					
NIZAMIAH GOOD HOPE	02	0510 E	0517 D		N08 W11		5476	7 D	1+	1	0510	3.65	3.75	2.00		Slow S-SWF	
	02	0647	0713	0652	N18 W32		5471	26	1		0652	2.40	3.00				
	02	0712	0805	0717	N08 W15		5476	53	1		0717	2.60	2.70				
	02	0750 E	0851	0819	N06 W05		5476	61 D	2	3	0819	8.64	8.82		72		
{PIRCULI PIRCULI PIRCULI GOOD HOPE	02	0750 E	1006	0755	N08 W06		5476	136 D	2	3	0755	6.37	6.83		97	S-SWF	
	02	0808	0835	0820 U	S01 W07		5476	27	1+	3	0820	2.36	2.41		73		
	02	1052	1113	1057	N08 W17		5476	21	1		1057	2.10	2.20				
	03	0715	0743	0725	S13 E67		5482	28	2	3	0725	2.94	7.48		84		
PIRCULI PIRCULI {PIRCULI PIRCULI CLIMAX	03	0755	0825	0805 U	N12 E30		5478	30	1	3	0805	3.72	4.49		62	S-SWF	
	03	0800	0840	0815	N09 W29		5476	40	1	3	0815	3.68	4.26		63		
	03	0814 E	0852 D	0842 U	N13 W24		5476	38 D	1	3	0842	2.85	3.19		54		
	03	1757	1803 D		N08 W35		5476				1802						
CLIMAX	03	2144	2213		N08 W35		5476				2148						
	04	0120	0129	0126	N07 W41		5476	9	1+	1	0126	5.11	6.69		69	S-SWF?	
	04	0325	0343	0329	N09 E18		5478	18	1	1	0329	2.51	2.67		67		
	04	0340	0359	0350	N07 W42		5476	19	2	1	0350	3.94	5.27		80		
{ALMA-ATA ALMA-ATA TASHKENT TASHKENT ALMA-ATA KRASNAYA KODATKNL	04	0732	0807	0753	N10 W34		5476	35	1	1	0753	1.28	1.80		54		S-SWF?
	04	0732	0831 D	0823	N10 W40		5476	59 D	1	1	0823	1.65	2.30		66		
	04	0735 E	1005 D	0756	N05 W38		5476	150 D	2	3	0759	12.75	17.00	2.60	80		
	04	0749	0831 D	0801	N09 W43		5476	42 D	1	1	0801	2.63	3.30		59		
KRASNAYA KODATKNL	04	0808 E	0930 D	0814	N05 W33		5476	82 D	2	2	0814	16.20	18.00	1.50	100	S-SWF	
	04	0845 E	0920 D	0855	N07 W36		5476	35 D	2	2	0845	11.00	13.80		122		
	05	0033	0050	0036	N10 W02		5478	17	1+	2	0036	2.32	2.39		80		
	05	0109 E	0137 D	0121	N09 W02		5478	28 D	1+	2	0121	2.41	2.46		80		
VOROSHILOV VOROSHILOV VOROSHILOV VOROSHILOV VOROSHILOV NIZAMIAH TASHKENT	05	0220 E	0300 D	0235	N21 W26		5477	40 D	1	2	0235	2.69	3.22		72	S-SWF	
	05	0226	0238	0229	N09 W02		5478	12	1+	2	0229	2.69	2.82		81		
	05	0243	0254	0244	N13 W48		5476	11	1+	2	0244	1.52	2.31		102		
	05	0345 E	0356 D		N09 W52		5476	11 D	1	2	0345	1.82	3.02	1.50			
{NIZAMIAH TASHKENT TASHKENT TASHKENT GOOD HOPE KRASNAYA WOSKOW G GOOD HOPE GOOD HOPE SYDNEY	05	0407 E	0416 D	0411	N03 W11		5478	9 D	1+	2	0411	2.43	2.47	1.80		S-SWF	
	05	0616 E	0630 D	0622	N08 E04		5478	14 D	1	3	0625	5.01	5.00	2.60	130		S-SWF
	05	0948	1023	1003	N10 W06		5478	35	1	2	1003	2.80	2.80		90		
	05	0959	1019	1004	N10 W06		5478	20	1+	2	1004	5.84	6.00	2.19	100		
{GOOD HOPE GOOD HOPE GOOD HOPE SYDNEY SYDNEY	05	1005 E	1024 D		N10 W06		5478	18 D	1+	1	1009	5.25	5.36			S-SWF	
	05	1024	1032	1025	N12 W49		5476	8	1		1025	1.40	2.20				
	05	1215	1250	1221	N11 W08		5478	35	2		1221	5.40	5.60				
	05	2320	2334	2323	N11 W13		5478	14	1	1	2323	2.00	2.00				
SYDNEY	05	2342	2349	2345	N08 W08		5478	7	1	2	2345	3.00	3.50			S-SWF	
	06	0008	0032	0010	N11 W06		5478	24	1+	3	0010	3.10	3.24		85		
	06	0008	0037	0012	N10 W04		5478	29	2	2	0012	7.00	8.00				
	06	0626 E	0632		N08 W72		5476	6 D	1		0626	.90					
{ALMA-ATA ALMA-ATA ALMA-ATA GOOD HOPE PIRCULI	06	0628 E	0654	0631	N12 W08		5478	26 D	1	3	0631	5.56			66	S-SWF	
	06	0629 E	0719	0632	N11 W11		5478	50 D	1	3	0632	1.23	1.30		68		
	06	0630	0703	0632	N12 W09		5478	33	1		0632	2.90	3.00				
	06	0640	0655	0643 U	N11 W09		5478	15	1+	2	0643	5.14	5.35		77		



# SOLAR FLARES

DECEMBER 1959

OBSERVATORY	DATE DEC 1959	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POB- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX. LAT.	M- MATH PLAGE REGION				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H <sub>g</sub>		MAX. INT. %
GOOD HOPE PIRCULI PIRCULI SYDNEY	06	0748	0810	0751	N07 W76	5476	22	2		0751	2.80				
	06	0825	0841	0832	N06 W70	5476	16	1	2	0832	1.37	3.95		63	
	06	0936	0954	0941	N11 W20	5478	18	1	2	0941	1.29	1.40		66	
	06	2225	2234	2228	N15 W60	5476	9	1	1	2228	1.00	2.00			
VOROSHILOV GOOD HOPE GOOD HOPE KASNYA	07	0302 E	0314 D		N15 W19	5478	12 D	1+	2	0312	3.32	3.60		80	
	07	0633 E	0709 D		N07 W78	5476	36 D	1		0633	.70				
	07	0940	1040	1001 U	N15 W26	5478	60	1		1001	2.50	2.80			
	07	1032 E	1100 D	1039	N08 W31	5478	28 D	1	2	1039	8.10	9.00		75	S-SWF
KHARKOV GOOD HOPE CLIMAX CLIMAX	07	1035	1120		N05 W33	5478	45	2	2	1038	11.30	14.00	2.00		
	07	1036	1116	1044	N08 W32	5478	40	1		1044	3.90	4.70			
	07	1636			N12 W37	5478				1645					
	07	1902	2002	1912	N09 W37	5478	60	1		1912	2.20				
VOROSHILOV ATHENS GOOD HOPE	07	2135	2240 D		N06 W39	5478				2143					
	08	0116	0204	0120	N14 W40	5478	48 D	2	2	0120	4.21	5.63		90	S-SWF
	08	0747	0829		N12 W42	5478	42	2	4		6.00	8.20			S-SWF
	08	0752	0839	0756	N13 W45	5478	47	2		0756	3.90	5.80			
SYDNEY SYDNEY SYDNEY ATHENS	09	0429	0444	0432	N15 W57	5478	24	1	3	0432	1.50	2.00			
	09	0453	0502	0458	N15 E78	5491	9	1	2	0458	.50	2.00			
	09	0554	0658		N05 W50	5478	64	2	2	0644	6.00	10.00			
	09	0737 E	0807		N06 W54	5478	30 D	1	3		1.70	2.90			
GOOD HOPE SYDNEY SYDNEY ATHENS	09	1313	1323 D	1319	N12 W55	5478	10 D	1		1319	1.40	2.60			
	10	0102	0150	0132	N15 W68	5478	48	2	3	0132	2.50	6.00			
	10	0332	0351	0340	N20 W54	5478	19	1	3	0340	1.50	3.00			
	10	0512	0537 D	0518	N15 W70	5478	25 D	2+	2	0518	5.00	12.00			S-SWF
GOOD HOPE GOOD HOPE KHARKOV GOOD HOPE	10	0743	0748		N08 W63	5478	5	1+	3		1.70	3.60			
	10	1221	1253	1234	N09 W19	5484	32	1		1234	2.60	2.80			
	10	1512	1533 D	1519	N15 W79	5478	21 D	1		1519	1.50				
	11	0910 E	0955 D	0932	S17 W44	5482	45 D	2	2	0932	11.30	17.80	2.00		
GOOD HOPE KRASNYA SYDNEY	11	0923 E	0957	0929 U	S16 W44	5482	34 D	2		0929	3.70	5.30			
	11	0928 E	0942 D	0930	S03 E73	5494	14 D	1+	2	0930	4.49	20.00		65	
	11	2234	2258	2243	N14 W40	5483	24	1	2	2243	2.00	2.00			
	13	0227	0243	0228	N15 E24	5491	16	1	1	0228	1.86	2.15		71	
SYDNEY VOROSHILOV SYDNEY VOROSHILOV	13	0227	0245	0229	N15 E22	5491	18	1	2	0229	2.00	2.00			
	14	0022	0057	0033	N19 W72	5483	35	2	3	0033	2.00	7.00		65	
	14	0338	0349	0340	N18 W76	5483	11	1+	1	0340	1.96	6.97			
	15	0209 E	0239	0230	S17 W80	5482	30 D	1	1	0230	.52	2.18		66	
VOROSHILOV GOOD HOPE NIZAMIAH	15	0343	0348 D	0345	S18 E90	5500	5 D	1+	1	0345	.43	3.09		80	
	15	0918	0937	0920	N10 W86	5484	19	1		0920	.30				
	16	0600	0611	0605	N07 W57	5495	11	1+	2	0605	1.82	3.44	2.00		
	17	0358	0436	0412	S08 W37	5490	38	2	3	0412	4.00	5.00			
NIZAMIAH PIRCULI TASHKENT	17	0401	0415	0406	S06 W34	5490	14	1+		0406	1.82	2.19	2.10	55	slow S-SWF
	17	0810	0826	0816	S12 E06	5494	16	1	1	0816	3.21	3.38			
	18	0602 E	0614 D		N24 E65	5502	12 D	1	2	0607	1.45	5.00	2.40	65	

COMMENCE - STANDARDS - BOULDER

# SOLAR FLARES

DECEMBER 1959

OBSERVATORY	DATE DEC 1959	OBSERVED UNIVERSAL TIME			LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS					PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX.		MAGNETH. FLAGE REGION				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H <sub>g</sub>		
					LAT.	MER. DIST.										
TASHKENT	18	0636 E	0700 D	0638	S07 W53		5490	24 D	1+	2	0639	2.55	4.00	4.30	80	S-SWF
SYDNEY	19	0013	0019 D		S10 W62		5490	6 D	1	2	0018	1.00	2.00			S-SWF
{NIZAMIAH	19	0337	0400	0345	S08 W63		5490	23	1+		0345	1.82	4.02	2.20		
{SYDNEY	19	0343	0405	0345	S08 W62		5490	22	1	2	0345	1.50	4.00			
SYDNEY	19	0415	0423		N24 E56		5502	8	1	1	0419	1.50	3.00			
GOOD HOPE	19	1039	1112	1042	S04 W32		5494	33	1		1042	1.70	2.00			
{SYDNEY	20	0009	0013 D		N23 E42		5502	4 D	1	3	0013	1.50	2.00			
{VOROSHILOV	20	0012	0029	0015	N22 E42		5502	17	1	2	0015	3.22	4.78		66	
VOROSHILOV	20	0048	0110	0058	S10 W80		5490	22	2	2	0058	1.35	5.44		87	
{SYDNEY	20	0111	0125	0115	N23 E41		5502	14	1	3	0115	2.50	4.00			
{VOROSHILOV	20	0112	0121	0114	N22 E41		5502	9	1	2	0114	2.33	3.47		76	
{SYDNEY	20	0131	0152	0144	N10 W06		5497	21	1	2	0144	2.00	2.00			
{VOROSHILOV	20	0132	0152	0134	N10 W06		5497	20	1	2	0134	3.41	3.52		68	
VOROSHILOV	20	0144	0228	0201	S17 E21		5500	44	1	2	0201	1.97	2.20		68	
SYDNEY	20	0333	0349	0336	N22 E40		5502	16	1	3	0336	1.50	2.00			
ALMA-ATA	20	0608	0628	0616	S18 E20		5500	20	1	2	0616	2.63	2.90		48	
{ALMA-ATA	20	0732	0802 D	0754	N11 E24		5501	30 D	1+	2	0754	5.61	6.40		50	
{GOOD HOPE	20	0749	0806	0754	N10 E23		5501	17	1		0754	2.30	2.50			
CLIMAX	20	1605			N04 W46		5493				1615					
{VOROSHILOV	21	0043	0350 D	0049	S05 W55		5494	7 D	2	2	0049	3.58	5.98		80	
SYDNEY	21	0053 E	0122		S04 W51		5494	29 E	2	1	0053	8.00	10.00			
VOROSHILOV	21	0139	0147	0140	N15 W85		5491	8	1+	2	0140	.90	4.44		81	
{SYDNEY	21	0143	0159		N24 E26		5502	16	1	1	0147	4.00	5.00			
{VOROSHILOV	21	0144	0213	0146	N24 E30		5502	29	1+	2	0146	3.10	3.92		93	
SYDNEY	21	0219	0250 D	0226	N20 E33		5502	31 D	1	2	0226	2.00	3.00			
VOROSHILOV	21	0316	0344	0318	N10 E12		5501	28	1	1	0318	2.86	2.94		78	
ALMA-ATA	21	0500 E	0610 D	0508	S13 E12		5500	70 D	1	2	0508	3.61	3.90		49	
ALMA-ATA	21	0500 E	0610 D	0508	N10 E09		5501	70 D	1	2	0508	1.33	1.40		47	
VOROSHILOV	24	0341	0434	0356	N25 W10		5502	53	1+	2	0356	2.86	3.32		84	Slow S-SWF
SIMEIZ	25	0858 E	0858		N25 W28		5502		1	1	0849	4.62	5.90	2.40		
GOOD HOPE	25	1303	1308 D	1305 U	S17 W57		5500	5 D	1		1305	1.20	2.30			
GOOD HOPE	25	1338 E	1405		N28 E62		5509	27 D	1		1339	1.30	3.60			
VOROSHILOV	27	0023	0039	0025	S19 W76		5500	16	1	2	0025	.72	2.28		74	
GOOD HOPE	27	0729	0736	0731	N03 W48		5501	7	1		0731	1.70	2.50			
GOOD HOPE	27	0834	0913	0837	S19 W85		5500	39	1		0837	.60				
GOOD HOPE	27	1021	1035	1025	N11 E58		5511	14	1		1025	1.70	3.30			
GOOD HOPE	27	1135	1202	1140	S18 W87		5500	27	1+		1140	2.20				
ALMA-ATA	28	0500 E	0800 D	0708	N09 W32		5505	180 D	1+	2	0708	6.59	8.10		48	
SYDNEY	29	0011	0027	0013	N20 E54		5513	16	1	2	0013	2.00	3.50			
NIZAMIAH	29	0320 E	0330 D		N07 W41		5505	10 D	1	1	0320	1.82	2.44	1.50		
ALMA-ATA	30	0516 E	0800 D	0735	N10 W60		5505	164 D	2	2	0735	6.28	13.70		49	
SYDNEY	31	0354	0401 D	0357	N20 W66		5506	67 D	1	2	0357	1.50	4.00			
PIRCULI	31	0725	0810	0745 U	S10 E62		5514	45	1	3	0745	1.84	3.71		52	

# SOLAR FLARES

DECEMBER 1959

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX.						MC-MATH PLACE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH He		MAX. INT. %
					LAT.	MER. DIST.										
GOOD HOPE	31 DEC 1959	0854	0920	0858	526 E82	5515	26	1		0858			•90			

COMMERCE - STANDARDS - BOULDER

These flare reports are addenda to the December 1959 flares published in CRPL-F 185 Part B, January 1960.

CAPRI C ANACAPRI - GERMAN  
CAPRI S ANACAPRI - SWEDISH  
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE  
KIEV\* KIEV UNIVERSITY  
KODAIKANAL KODAIKANAL  
KRASNAYA KRAVNAYA PAKHRA  
LOCKHEED LOS ANGELES

MOSCOW-C MOSCOW - CAISH  
R O EDIN ROYAL OBSERVATORY, EDINBURGH  
R O HERST GREENWICH ROYAL OBSERVATORY, HERSTMONCEUX  
SAC PEAK SACRAMENTO PEAK  
SCHAUNINS SCHAUNINSLAND  
USNRL UNITED STATES NAVAL RESEARCH LABORATORY

SAC PEAK: ALL VALUES IN MAX. INT. COLUMN ARE  
ARBITRARY UNITS (0-40), NOT PERCENT  
OF CONTINUOUS SPECTRUM.

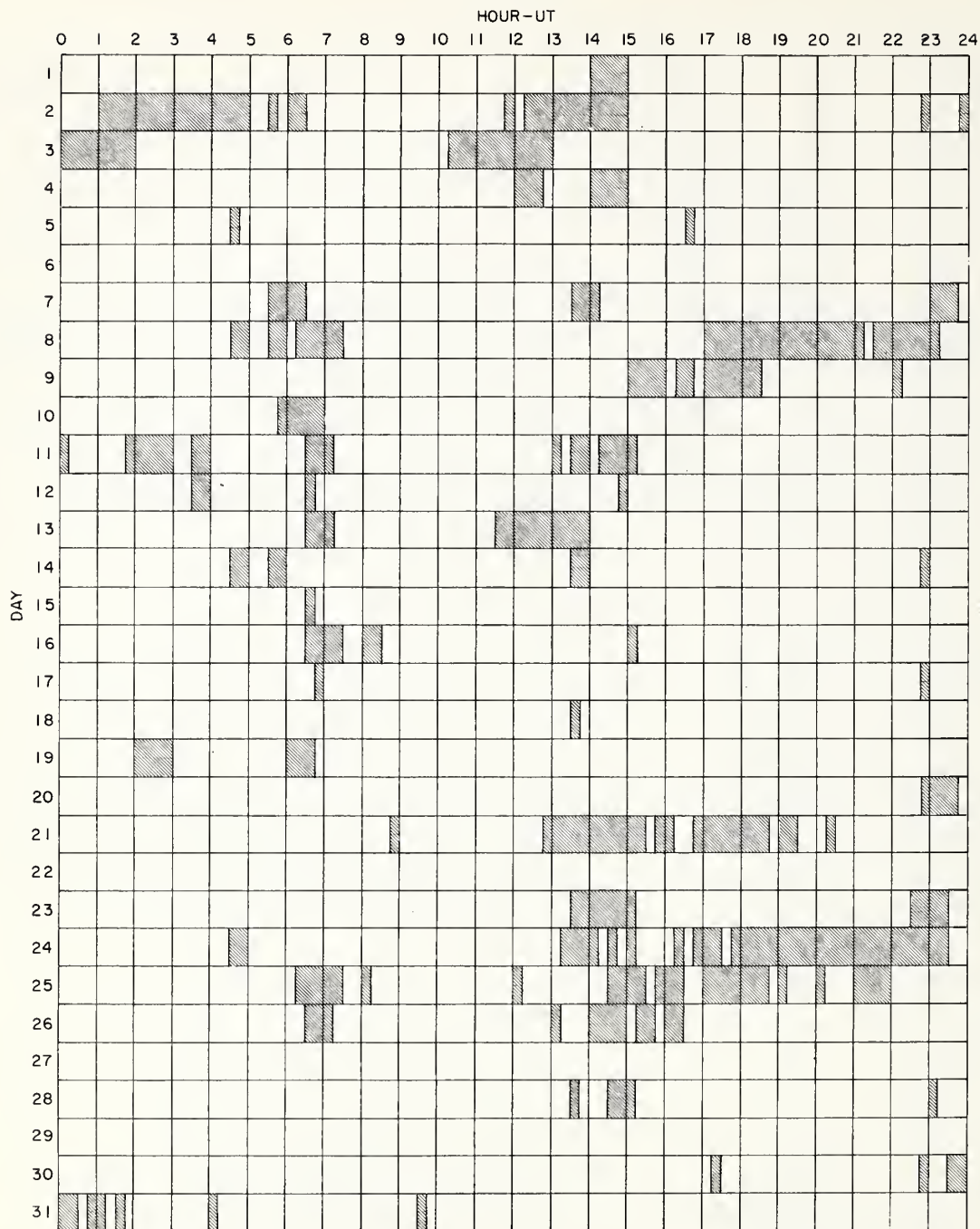
E - LESS THAN  
D - GREATER THAN  
U - APPROXIMATE

□ - NOT REPORTED

LOCKHEED OBSERVATIONS: ALL VALUES IN THE MAXI-  
MUM INTENSITY COLUMN ARE ARBITRARY UNITS ON A  
SCALE OF 10 TO 40 - NOT PERCENT OF THE CONTINUOUS  
SPECTRUM.

## INTERVALS OF NO FLARE PATROL OBSERVATIONS

DECEMBER 1959



Stations Include:

COMMERCE - STANDARDS - BOULDER

Abastumani  
Alma Ata  
Anacapri (Swedish)  
Arcetri  
Arosa  
Athens

Climax  
Dunsink  
Good Hope  
Hawaii  
Huancayo  
Kharkov

Kiev GAO  
Kodaikanal  
Krasnaya Pakhra  
Locarno  
Lockheed  
McMath

Meudon  
Mitaka  
Nizamiah  
Ondrejov  
Pirculi  
Royal Greenwich Observatory  
Herstmonceux

Sacramento Peak  
Simeiz  
Sydney  
Tashkent  
Voroshilov  
Zurich

# IONOSPHERIC EFFECTS OF SOLAR FLARES

1111

(SHORT-WAVE RADIO FADEOUTS)

FEBRUARY 1960

Feb. 1960	Start UT	End UT	Type	Wide Spread Index	Importance	Observation Stations	Known Flare, UT CRPL-F 187B
3	0825	0842	S-SWF	5	2	NE, <u>OK</u> , PU, RCA*, CW***	0818E
3	0945	1009	S-SWF	1	1	<u>NE</u>	0943E
3	1228	1306	Slow S-SWF	5	1+	DA, <u>HU</u> , NE, PR	1210E
3	1708	1820	S-SWF	5	2+	BE, FM, <u>HU</u> , LA, MC, NE, PR, SW, WS, CW***	1708
3	2020	2100	Slow S-SWF	5	2-	AD, BE, FM, HU, LA, <u>MC</u> , PR, WS	2015
3	2345	0008	S-SWF	5	1+	CA, LA, <u>OK</u> , TO	*
4	0118	0155	S-SWF	1	1+	<u>OK</u>	*
4	0747	0805	S-SWF	5	1+	KO, <u>NE</u>	*
4	1309	1340	Slow S-SWF	5	1	HU, NE, <u>PR</u>	1336E
4	1641	1718	Slow S-SWF	4	1+	<u>HU</u> , MC, PR	1636
4	2038	2053	S-SWF	5	1+	BE, HU, LA, MC, PR, WS	
5	1349	1412	Slow S-SWF	5	2-	BE, DA, <u>HU</u> , MC, NE, PR, PU, SW	*
6	0303	0440	Slow S-SWF	1	3	<u>OK</u>	*
6	1226	1232	S-SWF	1	1	<u>NE</u>	1227E
6	1349	1430	Slow S-SWF	5	1+	NE, <u>PR</u>	*
7	1607	1623	S-SWF	4	1-	LA, HU, MC, PR	
10	0420	0513	S-SWF	1	1+	<u>OK</u>	*
13	2000	2035	Slow S-SWF	5	1	AD, AN, FM, HU, LA, <u>MC</u> , PR	2002
18	0103	0254	S-SWF	5	3+	AD, AN, <u>OK</u>	*
20	0218	0408	Slow S-SWF	5	3+	AD, AN, <u>OK</u>	*
22	1358	1440	S-SWF	5	3-	<u>BE</u> , BR, DA, HU, MC, NE, OK, PR, SW, RCA*, CW***	1424E
23	0553	0637	Slow S-SWF	1	2	<u>OK</u>	*

COMMERCE - STANDARDS - BOULDER

CA = Canberra, Australia

BR = Breisach, G.F.R.

DA = Darmstadt, G.F.R.

KO = Kodaikanal, India

LA = Los Angeles, Calif.

LI = Lindau, G.F.R.

NE = Nederhorst den Berg, Netherlands

PU = Prague, Czechoslovakia

RCA = Radio Corporation of America, Tangiers, Morocco

TO = Hiraio Radio Wave Observatory, Japan

CW\* = Cable and Wireless, Barbadoes

CW\*\* = Cable and Wireless, Somerton, England

CW\*\*\* = Cable and Wireless, Brentwood, England



## IONOSPHERIC EFFECTS OF SOLAR FLARES

( Sudden Cosmic Noise Absorption  
Sudden Enhancements Of Atmospherics )  
Solar Noise Bursts At 18 Mc.

DECEMBER 1959

Dec. 1959	CLASS			WIDE- SPREAD INDEX	TIME (UNIVERSAL TIME)			PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
	SCNA	SEA	Burst		BEGIN	MAX.	END		
1		1		1	1518		1540		NE
1			1	5	1651		1700		BO, MC, SP
{ 1	3		5	5	1705	1712	1815	75	BO, MC, SP
1		3		5	1705	1712	1755		A3, A5, BO, DU, HA, SP
2		1		1	1054		1130		NE
2		1		5	1247	1253	1340		A3, A5, DU, NE, PA
3		3		3	1019	1029	1115		DU, NE
3		2		1	1413		1458		NE
{ 3	3		3	5	1757	1812	1945		A1, A3, A5, BO, DU, NE, SP
3				5	1758	1812	1920	65	BO, HA, MC, SP
3			1	5	2318		2321		BO, HA
{ 4	2	3		5	1819	1830	2000	40	A3, A5, BO, DU, SP
5		2		3	1821	1827	1925		BO, HA, MC, SP
5		2		5	1003		1030		NE, PU
5		2		5	1220	1227	1247		DU, NE, PA, PU
5		1+		1	1618	1632			A1
7		3		1	0436		0606		TO
7		□		1	0931	0934	1005		DU
7	1			1	2138	2145	2215	25	HA
10	□			1	0518				SY
11			1	5	1708		1710		HA, MC, SP
17		3		1	0402		0507		TO
{ 17	1			1	2147	2150	2205	20	HA
17		2		5	2148	2158			BO, HA
19		1		1	1043		1100		NE
22		3		3	1345U	1355	1433		A1, A3, A5
24		2		3	1338	1352	1420U		A1, A3, A5
24		2-		3	1634	1658	1730U		A1, A5
31		1		5	1940		1943		BO, HA

SY = Sydney, Australia

TO = Hiraio Radio Wave Observatory, Japan

JANUARY 1960

Jan. 1960	CLASS			WIDE- SPREAD INDEX	TIME (UNIVERSAL TIME)			PERCENT ABSORPTION SCNA	OBSERVATION STATIONS
	SCNA	SEA	Burst		BEGIN	MAX.	END		
2			1	1	1540	1551	1612		RE
3			1	1	1303	1309	1317		RE
3			1	1	1325	1327	1329		RE
3			1	1	1350	1357	1358		RE
{ 3	1		1	1	1815	1825	1850	20	BO
3		1		4	1815	1840	1905		A6, BO
7		1		3	1253		1328		KU, NE
7		3		3	1506		1536		DU, NE
{ 11		1		5	2050	2115			BO, HA
11			1	5	2055		2104		BO, HA
{ 11	1			5	2104	2115	2140U	20	BO, HA
12		2		5	1513	1532	1600		A3, A5, DU
13		1		5	1445	1450	1503		A5, NE
13		2		3	1510	1533	1605		A1, A5
{ 13	1			5	1849	1852	1910	20	BO, HA, SP
13		2		5	1850	1900	2000		A1, A3, A5, BO, HA
15		2		5	1345		1420		A1, A3, A5, DU, NE, PA
{ 15	1			3	1730	1737	1750	15	BO, SP
15		1		4	1733	1737	1820U		A3, BO
{ 16		2		5	2243	2257	0000		BO, HA
16		2		5	2246	2251	2310	40	BO, HA, SP
17		2		3	1615	1633	1710U		A1, A5, A6
{ 19	1			5	1942	1947	2005	10	BO, HA, MC, SP
19		2		5	1942	2000	2100U		A2, BO
22		2		3	1648	1705	1735		A1, A5
22	1			5	1955	2000	2005	10	BO, HA
23		1		1	1348		1408		NE
24		1		3	1308		1333		KU, NE
25		1		1	1032		1058		NE
{ 25		1		1	1715	1730	1820U		BO
25	1			3	1716	1722	1745	20	BO, SP
{ 30	1			5	2020	2030	2105	15	BO, HA, SP
30		1+		5	2020	2035	2145		A1, A5, BO
30			2	1	2051	2104	2107		RE
31		1		5	1429	1437	1505		A1, A3, A5, NE

COMMERCE - STANDARDS - BOULDER

# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

Ottawa

MARCH 1960

2800 Mc

Mar. 1960	Type*	Start UT	Duration Hrs:Mins	Maximum		Remarks
				Time UT	Peak Flux	
1	2 Simple 2	1239.5	4	1241.5	8	
1	2 Simple 2 f	1724.3	1	1724.5	36	
1	2 Simple 2 f	1919	7	1921	>140	
2	2 Simple 2	1622	3	1622.4	22	
4	3 Simple 3 A	2038	>1 52	2145	7	
	6 Complex	2043	8	2044.2	12	
7	3 Simple 3 A	1750	2 30	1845	12	
	6 Complex	1812	13	1818	16	
10	2 Simple 2 f	1717	7	1718.5	335	
18	2 Simple 2	2122	2	2122.5	16	
21	2 Simple 2	2120	1	2120.5	8	
28	6 Complex f	2047.7	1 10	indet.	>885	
	4 Post Increase		>1		30	
29	6 Complex f	2038	42	2109	40	
30	6 Complex f	1518	3 40	1556	1750	
	4 Post Increase		3 10		20	
31	1 Simple 1	1619	5	1620.3	7	

COMMENCE - STANDARDS - ROLDER

HOURS OF OBSERVATION: JANUARY - MARCH 1960OBSERVING PERIOD:

January 1330 UT - 2120 UT (approx.)

February 1245 UT - 2200 UT (approx.)

March 1220 UT - 2245 UT (approx.)

with the following exceptions:

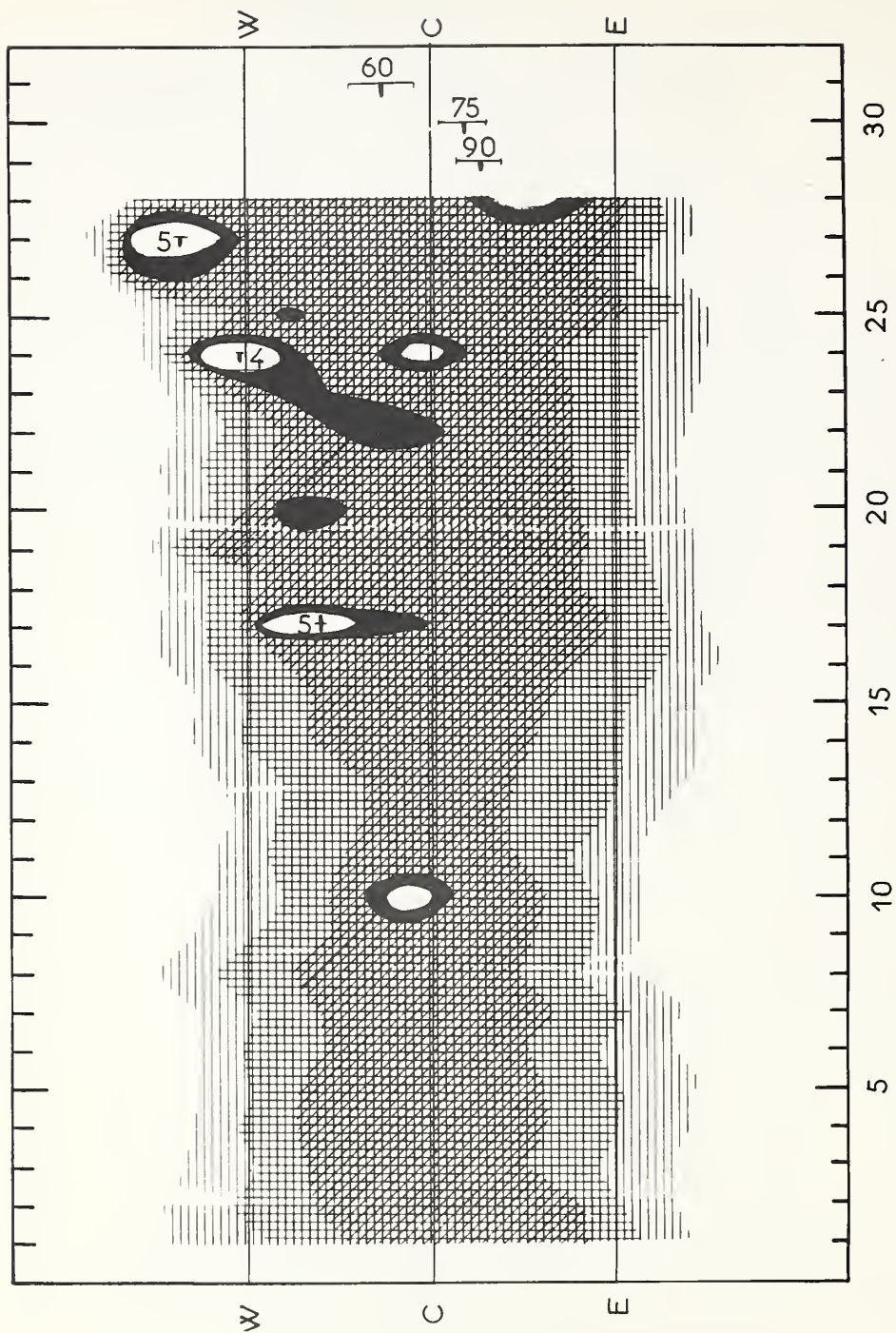
- (1) No observations: January 1 - all day  
March 26 - all day  
27 - all day  
31 - 1415 - 1535
- (2) Observations commenced:  
January 28 - 1615  
February 8 - 1555  
23 - 1525  
24 - 1455  
March 28 - 1515
- (3) Observations ended:  
February 7 - 1815
- (4) Continuous observations on all days have been interrupted for receiver calibration and by sporadic interference.

SOLAR RADIO EMISSION  
INTERFEROMETRIC OBSERVATIONS

MARCH 1960

Nançay

169 Mc



MARCH 1960



Note:

The interferometric observations on 169 Mc at Nançay will be interrupted at the end of the month of April for maintenance work. After an approximate delay of 8 days the E-W interferometer will again be in use, and after a month the N-W interferometer.

# SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

MARCH 1960

BOULDER

167 MC

Mar. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity	Mar. 1960	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
1	3	1921.0	1921.2	0.5	3	19	8	2118.6	2119.0	2.4	2
1	3	1923.6	1923.6	0.2	3	20	3	2318.6	2318.6	0.2	2
1	3	1925.0	1926.0	1.0	3	22	2	1308	1315	8	2*
5	3	1512.7	1512.7	0.1	2	22	3	1324.9	1324.9	0.1	2*
6	3	2321.0	2321.0	0.2	1	22	3	1456.9	1456.9	0.2	2
7	3	2121.0	2121.1	0.2	2	22	3	1504.5	1504.5	0.5	2
8	3	0023.6	0024.5	0.9	3**	22	3	1535.4	1536.0	0.4	2
8	3	1714.2	1714.2	0.1	1	22	3	1723.0	1723.0	0.1	2
8	2	1859.4	1900.4	1.0	2	22	7	1808	1945	257	2
8	3	1915.5	1915.5	1.0	1	22	3	0047.4	0047.4	0.1	2**
8	3	1917.0	1917.3	1.0	3	23	6	1258 E	1524	722 D	3
8	3	2003.7	2003.7	0.1	2	24	6	1256 E	1533	726 D	2
8	3	2015.0	2015.8	1.0	2	24	3	1321.6	1322.0	1.1	3*
8	3	2243.6	2243.6	0.2	2	24	3	1622.0	1623.0	1.3	3
8	3	2351.0	2351.0	0.1	2	24	8	1949.0	1951.0	3.9	3
9	3	0017.9	0017.9	0.3	2**	24	3	2200.6	2201.0	1.0	3
9	2	0022.0	0025.0	3.0	2**	25	8	1404.7	1407.0	3.2	3
9	3	1615.9	1616.9	1.6	3	25	3	1454.0	1454.0	0.2	2
9	3	1652.1	1652.7	1.0	2	25	3	1639.0	1639.0	1.0	2
9	3	2021.8	2022.5	1.2	2	25	3	1852.2	1853.0	0.8	2
10	3	1412.0	1412.0	0.1	2	25	3	2009.0	2009.0	0.2	2
10	3	1506.5	1506.8	0.6	2	25	8	2013.0	2013.8	2.0	2
10	3	1551.0	1551.0	0.1	1	25	3	2043.5	2043.5	0.1	2
10	8	1717.5	1718.2	9	3	25	3	2115.6	2116.0	0.7	2
10	3	1733.9	1733.9	0.1	2	25	3	2333.0	2333.0	0.5	2
10	3	1747.0	1747.2	0.8	2	26	3	1539.0	1539.4	1.0	3
10	3	2049.5	2049.5	0.1	2	26	3	1542.7	1542.7	0.1	2
10	3	2239.9	2239.9	0.1	1	26	8	1710.0	1710.6	3.0	3
10	3	2249.0	2249.0	0.3	2	26	3	1915.3	1915.3	0.5	3
10	2	2253.0	2254.8	1.8	1	26	3	1959.9	1959.9	0.2	1
10	3	2306.3	2306.3	0.1	1	26	3	2022.9	2022.9	0.1	2
11	3	0006.3	0006.3	0.7	2**	26	8	2050.5	2051.5	4.4	2
11	3	0029.0	0029.0	0.1	2**	26	7	2218		164 D	2
11	3	1947.0	1948.6	2.0	3	26	3	0025.4	0025.4	0.3	3**
16	6	1310 E		330 D	1	27	6	1250 E	1537	368	2
16	3	1453.1	1453.1	0.1	2	28	3	1635.0	1635.0	0.1	2
16	3	1506.0	1506.0	0.1	2	28	3	2047.9	2047.9	0.2	2
16	3	1805.4	1805.4	0.2	1	28	9	2051	2130 U	256 D	3
16	3	2016.0	2016.0	0.1	2	29	6	1247 E	1813	741 D	3
16	3	2356.5	2356.5	0.1	2	30	6	1246 E		744 D	3
17	3	1349.5	1349.5	0.2	2*	30	9	1529	1550 U	240 D	3
17	2	1354.0	1354.6	0.9	2*	31	6	1245 E		747 D	3
17	7	1623		301	2						
17	2	2009.5	2010.7	1.5	3						
19	8	1519.0	1519.9	1.9	2						

\*On sunrise pattern.

\*\*On sunset pattern.

COMMERCE - STANDARDS - BOULDER

## TIMES OF OBSERVATION

Mar. 1960	U.T.	Mar. 1960	U.T.
1	1552-0037	17	1309-0055
2	1333-0039	18	1307-0057
3	1330-0039	19	1305-0057
4	1330-0040	20	1303-0057
5	1328-0043	21	1301-0058
6	1621-0043	22	1300-0059
7	1400-0045	23	1258-0100
8	1311-0045	24	1256-0102
9	1322-0046	25	1255-0102
10	1320-0048	26	1253-0102
11	1330-0048	27	1250-0102
12	1317-0049	28	1415-0107
13	1315-0050	29	1247-0108
14	1314-0051	30	1246-0110
15	1345-0052	31	1245-0112
16	1310-0053		

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVc

JULY 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Uncl.	Time	Int	Act	Time	Int	
July 1 0000-0150 1215-1715 1717-2400		1413 2017 2118	1 2 2				g 1400 b 1702 b 2015 g 2016-17 g 2149 G 2312-13		3 3 3 3 2 2	
July 2 0000-0145 1215-2400		2235	1							
July 3 0000-0150 1220-2400				Uncl.	2357-58	2	g 1522 g 1920 g 2253 g 2356 g 2357		1 3 2 2 3	
July 4 0000-0130 1215-2400		0024	1	Uncl.	0000-0001	2	g 1356-57 b 1816		1 1	
July 5 0000-0150 1220-1802		1226-38 1255-1312 1504-16 1710	1- 1- 1- 2				g 1541-42		2	
July 6 1440-2400		1709-19 1735-38 1757 1817-22 2223 2234-52 2340	1- 1- 1- 1- 2 1- 1-				C 1443-45 g 1453 g 1515-16 b 1611 b 1828 b 1930		2 2 2 1- 1 1	
July 7 0000-0150 1215-1557 1601-1621 1627-1632 1650-2400		0140-44 1326-31 1338-47 1628 1655-1700 1752	1 1 1- 1 1 1				b 0027 g 0029 g 0032 g 1629 b 1655 g 1657 g 1734 g 1810		1- 3 2 2 1 3 2 1	
July 8 0000-0150 1227-1532 1910-2400		0015-19 1228-49 1259 1317-18 1413 1451 2037 2043 2102 2341-47	1 1 3 2 1 2 3 2 1 1	Uncl.	2025	1	b 1228 b 1321 b 1322 g 1328 C 1334-35 C 1340-41 C 1343-44 b 1429 C 1441-42 g 1444 g 1446 b 1450 b 1451 g 1938 g 1943 g 1955 b 2026 C 2035-36 g 2043 b 2046 b 2103 b 2121 g 2133		3 2 2 3 3 3 2 1 3 2 1 2 1 1 1- 1 3 1- 1 2 2 1	
July 9 0000-0150 1230-2230 2235-2400	IV Cont. IV Cont. IV Cont. IV Cont. IV Cont. IV Cont.	2044-2105 2105-10 2110-14 2114-2257 2257-2330 2330-2400	2 1 2 3 2 1							
		0032-34 1310 1441-45 1504-05 1647 1717-18 1727 1750 1812-22 1910 1917-19 1940-48 1948-53 2001-17 2019-23	1 1- 2 1 1- 1- 1 1 1 1 2 1 2 1 2	Uncl. Uncl.	1918 2045-46	1 3	g 0032 g 0033 g 0034 b 1429 g 1442 b 1452 g 1646 g 1646 g 1810 g 1816 g 1830 b 1831 b 1837 b 1854 g 1934-35		2 1 1 2 2 1- 1 1 3 2 2 1- 1 1- 2	2114-2257 Structure in continuum

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JULY 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) / Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
July 9 Cont.		2028-38	1-				b	1936	1	
		2042-46	2				g	1946-47	1	
		2054-2118	1				b	1950	2	
		2204-05	2				g	1951	2	
		2240-57	1				b	1957	1	
		2313	2				g	1958	2	
		2348 →	2				b	2004	1-	
							g	2005	2	
							g	2019-20	2	
							b	2042	1	
							g	2045-46	3	
July 10		← 0020	2				b	1323	2	
0000-0150		0020-51	1				b	1649	1	
1230-2400		0051-53	3				g	1652	2	
		0100-15	1				g	2248	1	
		0141-42	1							
		2253	2							
July 11		1927	1-	Uncl.	2056	1	g	0004	1	
0000-0150							b	1318	2	
1300-2400							b	1321	2	
							b	1626	3	
							g	1638	1	
							b	1920	1	
							g	1921	1	
							b	1927	1	
							b	1928	1-	
July 12		1231-36	2	Uncl.	1800	2	b	1524	1-	
0000-0150		1236-1442	1				b	1602	2	
1230-2400		1542-43	1				b	1639	1	
		1543-1601	1-				b	1804	1	
		1601-07	1				b	1805	1	
		1607-30	1-				g	1807	2	
		1631	2				b	1929	1-	
		1631-39	1				b	1936	2	
		1640-1708	1-				g	1944	1-	
		1708-11	2				b	2022	2	
		1713-47	1-				b	2209	2	
		1814-17	1				b	2227	2	
		1826-35	1-				b	2238	2	
		1844-54	1-				b	2243	3	
		1854-1902	1							
		1902-21	1-							
		1946-2000	1-							
		2000-13	1							
		2013-19	1-							
		2028-48	1							
		2102-26	1-							
		2126-32	1							
		2157-2210	1-							
		2211-26	1							
		2226-31	2							
		2231-56	1							
		2302-11	1-							
		2311 →	1							
July 13	IV Cont.	1937-43	2							
0000-0150	IV Cont.	1943-2005	3				b	0138	3	1937-2005 Structure in continuum.
1235-1540		← 0039	1				b	1739	2	
1542-2400		0040-54	1-				g	1740-41	1	
		0110-34	1-				g	2033	2	
		0134-44	1				b	2221	3	
		1236-1300	1-							
		1329-34	1							
		1349-1417	1-							
		1438-45	1-							
		1457	1							
		1511-39	1-							
		1552	1-							
		1640-54	1-							
		2147	1							
		2256	2							
July 14	Cont.	1409-12	1							
0000-0150	Cont.	2005-06	3							
1230-2400	Cont.	2059-2101	3							
		0006-15	1	Uncl.	1418-25	2	g	1252	2	
		0017-30	1-	Uncl.	1904	1	b	1324	1	
		0134	1				G	1334-35	2	
		1259	1				g	1444	1	
		1308-20	1-				g	1446	1	
		1320-1511	1				g	1610	2	
		1515-1609	1-				b	1634	2	
		1722-33	1-				G	1735-36	2	
		1733-38	3				G	1736-37	3	
		1747-50	1				g	1748	2	

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVg

JULY 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
July 14 Cont.	1750-1832 1- 1924-57 1- 1957-2018 1 2040-2101 1- 2101-08 1 2131 1 2151-55 1- 2217-23 1 2223-28 3 2228-32 1- 2241-59 1 2259-2302 2 2305-42 1- 2343-48 1		g 1811-12 2 b 1902 1 g 1905 3 b 1927 1 g 1953-54 1 G 2005-06 3 b 2032 1 g 2059-2100 3 g 2139 1 g 2223 2 g 2223 1 G 2224-28 2 g 2232 1- g 2233 1-	
July 15 0000-0150 1230-2400	0017-0111 1 1235-51 1 1255-1300 2 1331 2 1348-1430 1 1445-55 1- 1455-57 1 1512-21 1- 1549-58 1- 1748-1811 1- 1836-1906 1- 1925-27 3 2014 1- 2035 1- 2243-2303 1- 2328-29 2 2338-39 1	Uncl. 1759 1	g 0003 2 g 1242-43 3 g 1415 3 b 1455 2 g 1633 3 b 1704 2 g 1716 1 g 1727 3 b 1854 1 b 1906 1- b 1907 1 G 1926-28 3 g 2328-29 2 b 2335 1- g 2338-39 2 g 2344 1 g 2350 1-	
July 16 0000-0150 1230-2400	IV Cont. 2121-2250 3 IV Cont. 2250-56 2 IV Cont. 2256-2302 1 IV Cont. 2302 2 IV Cont. 2302-13 1 IV Cont. 2313-22 2 IV Cont. 2322-48 1 IV Cont. 2348-54 2 IV Cont. 2354 → 1 0000-02 2 0059 1 1347 1 1404-15 1 1454 1 1535-1622 1 1622-31 2 1640-45 1- 1645-54 1 1658-1702 1- 1716-25 1- 1736-55 1- 1810-13 1- 1909-16 1- 1939-2004 1- 2004-10 1 2011-24 1- 2100-01 1	II 1616-23 3	g 0000-02 1 b 0003 1 g 0007 2 g 0007 1 g 0138 1 b 1236 1- g 1329 1- b 1435 1- g 1610 1 g 1615 3 b 1637 2 b 1652 3 b 2008 1 g 2120-21 3 g 2122 3 b 2349 2 b 2352 2	2121-2250 Structure in continuum. Over range 200-580 Mc/s have many fast drift bursts with both positive and nega- tive slopes.
July 17 0000-0150 1230-2400	IV Cont. ← 0143 1 0113-24 1 1257-1304 1- 1327 1 1343 2 1503 1 1711-30 1 1730-35 1- 1753-55 1- 1816 1- 2148-58 1- 2223 1 2339-47 1		g 1406 1 b 1640 1	
July 18 0000-0150 1230-2400	Cont. 1617-19 1 0002-0109 1- 0128-42 1 1237 1 1310-18 1- 1441-1508 1- 1635-41 1 1641-1706 2 1706-1801 1 1841-42 1- 1922-31 1- 1954-2212 1- 2230 1-	Uncl. 1847 2	b 1259 2 g 1300 2 g 1339 3 g 1342 2 b 1617 1 b 1707 1- b 1853 2	

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JULY 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
July 19 0000-0150 1230-2400	0010-25 1- 0054-56 1 0123-27 1- 1240-1324 1 1326-41 1- 1402-04 1- 1451-1502 1- 1531 1 1803 1- 1918-19 1- 2350-56 1-		b 0048 1 b 0056 3 g 1242 1- g 1244 1- G 1246-47 2 b 1427 2 b 1505 1 g 1506-07 1 g 1509-10 1- b 1744 1- g 2011 1	
July 20 0000-0150 1230-2400	0104-05 1 1543 2 1616-19 1 1926-33 1-		b 1616 1 g 1619 2	
July 21 0000-0150 1230-2400	1952 1-		g 2017 1	
July 22 0000-0150 1230-2400	0010 1-		b 1448 2	
July 23 0000-0150 1230-2400				No activity observed
July 24 0000-0150 1230-2400	1917-2035 1 2117 1		b 1309 2 g 1634 2 g 1740 2 g 1744 3 b 1746 3 g 1919-20 1 g 2001 1 g 2006 1 b 2021 1- g 2101 2 b 2217 1 b 2230 1	
July 25 0000-0150 1240-2400	0028-31 3 1243-1305 1- 1330-1426 1- 1447-1503 1- 1742-54 1 1807 3 2026-27 1 2106 1-	Uncl. 1618 1- Uncl. 2108 2 Uncl. 2204 2	b 0028 2 b 0029 1 g 0030-31 3 g 1500 2 b 1629 1- g 1740-41 1 g 1742 1 b 1916 1 b 1955 2 g 2026 1 b 2326 2 g 2340 1	
July 26 0000-0150 1240-2400	1406 1 1637 1 1708-09 1 1710-15 3		g 1709-11 2 b 1712 2 g 1714-15 2	
July 27 0000-0150 1230-2400	Cont. 2107-12 2 1456-1500 2 1748-1811 1 1815-27 1- 2106-39 1	Uncl. 1839-41 1- Uncl. 2044 3 II 2118-26 2	b 1230 1- g 1457 2 b 1811 2 b 1829 1- g 1840-41 1 b 1920 1 b 1935 1- g 1959 1- g 2010-11 1- g 2012-13 1 g 2107-08 3 g 2110-11 3 g 2116 2 b 2118 1 g 2122 2 b 2331 1- g 2333 3	
July 28 0000-0150 1230-2400	1507 1- 1533-43 1- 2001-02 1	Uncl. 1848 1 Uncl. 1902 1	b 0027 3 G 0103 2 b 0114 1- b 1507 1- b 1543 1 b 1556 1 g 1855-57 3 g 1859-1900 2	

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVI

JULY 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
July 29 0000-0145 1230-2400	Cont. 2118-20 3 1257 1 1324-27 2 2117-30 2	Uncl. 2121-22 2 Uncl. 2124 3	b 1319 1 b 1618 1 g 1827-29 3 b 1921 1- G 2118-20 3 b 2120 1 g 2123-24 1- g 2125 2 b 2127 1- g 2129 2 b 2350 3 g 2359 1-	2124 Unclassified burst has some characteristics of a slow drift burst.
July 30 0000-0150 1230-2400	Cont. 1340-2140 1 Cont. 2140-2240 2 Cont. 2240 → 1 1541-52 1- 1608-57 1 1716 1 1735-1825 1- 1825-39 1 1839-51 2 1853-1918 1- 1934-2158 1 2157 2 2221-22 2 2230-39 1- 2254-2315 1- 2333-38 2 2339 → 1-	Uncl. 1940 2 Uncl. 2042 2 Uncl. 2102 2 Uncl. 2313 1	G 0000-06 2 g 0007 1 g 0008 1 g 0009 2 g 1244 2 g 1536 1 b 1556 1 g 1706 3 G 1708-09 3 b 1806 1- g 1824 1 g 1829 2 g 1830 1 b 1854 1- g 1901 2 b 1941-42 1 b 1943 1- g 2019 2 g 2020-22 2 b 2033 1 b 2044 1 b 2050 1- b 2145 1	
July 31, 1959 0000-0145 1230-2400	Cont. ←-0022 1 0039-0111 1 0128-31 1 1235-48 1 1248-1334 2 1334-1433 1 1433-44 2 1444-1614 1 1614-16 2 1616-28 1 1628-34 2 1634-1722 1 1722-27 2 1727-1836 1 1836-38 2 1838-1952 1 1952-2022 1- 2022 3 2023-2201 1 2201-2323 2 2323-31 1 2331-33 2 2333 → 1	Uncl. 1507 2 Uncl. 1714 2 Uncl. 1740 2 Uncl. 1805-06 2 Uncl. 1824 2 Uncl. 1947 2 Uncl. 2101 3	g 0039-40 2 g 1253 3 g 1254 1 g 1255-58 2 b 1259 1 b 1302 1- b 1304 1- g 1308 1 b 1313 2 g 1314 2 g 1316 2 b 1342 1 g 1343 2 b 1401 1 g 1456 1 g 1457 1- b 1458 1 b 1540 1 b 1552 1 G 1555-58 2 g 1603 2 g 1704 2 b 1829 1 b 1936 1 b 2047 1- b 2048 1	1824 reverse drift pair 1947 reverse drift pair

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

AUGUST 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursta* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Aug. 1, 1959 0000-0140 1230-2400	Cont. 1745-47 3 ← 0128 1 0128-36 2 1252 1 1313-1445 1- 1445-1514 1 1514-51 1- 1607-18 1- 1618-19 2 1619-1727 1- 1727-29 2 1729-46 1- 1746-55 2 1759-1821 1- 1821-31 1 1831-1900 2 1900-19 1- 1919-34 1 1934-2008 2 2008-2040 3 2040-2127 1 2127-31 2 2131-2323 3 2323 → 1	II 1754-1810 2	g 1301-02 1 b 1320 2 g 1326-27 1 b 1332 1 g 1508-09 1 g 1510 2 b 1746 1 b 1747 3 b 1748 2 b 1812 1 g 1813 2 g 1939-40 2 b 2033 1-	
Aug. 2 0000-0140	← 0017 1 0017-18 3 0018-30 2 0030-37 1 0037-43 2 0043-49 1 0049-50 2 0050-0120 1 0120-36 2			
Aug. 3				No observation
Aug. 4				No observation
Aug. 5 1230-2400	Cont. 1816-17 1 1303 1- 1744-45 1 2038 1	Uncl. 1531 1	g 1314 1 g 1558 1 b 1850 1- b 2041 2	
Aug. 6 0000-0140 1230-2400	Cont. 1749-50 2 Cont. 2138-39 3 0035 1- 1351-55 1 1518-19 1 1639-45 1- 1704-18 1 1748-49 1 1825-26 1- 1935-2006 1- 2101-02 1- 2138 2 2144-47 1 2148 2 2338-42 2	Uncl. 1425-26 2	b 0024 1 g 1329 2 b 1347 1- b 1350 1- b 1352 2 g 1353 1 g 1355 1 g 1426 2 g 1516 2 b 1518 2 g 1519 2 b 1519 1 g 1524 2 G 1525-26 3 g 1538 2 b 1546 1- b 1547 1- b 1552 1- g 1603 3 g 1611 2 g 1658 1- g 1659 1 b 1727 1- G 1730-31 2 b 1748 2 g 1749 2 b 1750 1 b 1757 1 g 1805 3 b 1823 2 b 1826 1- g 1829 3 G 1831 2 g 1832-33 2 b 1834 1 g 1930-31 2 g 1932 2 g 1933 2 g 2023 2 G 2024-25 3 b 2026 3 b 2105 1 G 2137 3 g 2140-41 3 G 2141-43 3 g 2144-46 1 G 2147-48 3	



# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVk

AUGUST 1959

Fort Davis

25-580 Mc

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Aug. 6 Cont.			b 2154 2 C 2219-20 1 C 2337-41 2	2340-41 three U bursts
Aug. 7 0000-0140 1230-2400	Cont. 1335 2 Cont. 1533-34 3 Cont. 1657-1700 2 Cont. 1734-38 3 Cont. 1740 1 Cont. 2109-10 3 0005-12 1- 0120-22 1- 1251-1535 1- 1536 3 1536-1640 1- 1640-41 2 1641-54 1- 1654 2 1708-10 2 1710-38 1- 1738-43 2 1844 1- 1905-06 2 1910-2005 1- 2021-23 1 2037-38 1- 2106 1 2209-19 1-	Uncl. 1530 2 Uncl. 2319 1	g 0018 1 b 0020 1 g 0121 1- g 1334 2 g 1335 1 b 1337 3 b 1338 3 g 1401 1- g 1458 2 g 1504 1 b 1516 3 b 1527 1- g 1528 1 g 1529-30 2 g 1531 2 C 1532-34 2 g 1535 2 g 1618 2 g 1657-58 1 g 1659 1 g 1708-09 1- b 1710 1 b 1711 1- b 1713 1 g 1721 1 C 1733-35 3 g 1736-37 1 C 1739-41 2 g 1907 1 g 2016 1- g 2022 1- g 2023 2 g 2109-10 3 g 2201-02 1 g 2202 2 b 2225 1- b 2233 1 g 2328 1	1530 U burst.
Aug. 8 0000-0140 1240-2400	Cont. 1714-20 2 Cont. 2150 2 0026-33 1 0043-52 1- 1258-1320 1- 1341-51 1- 1408-19 1- 1426-27 2 1530 1- 1557-1604 1 1617-18 1 1627-33 1- 1726 2 1727-1836 1- 1836-1915 1 1915-45 2 1945-2019 1 2019-2145 1- 2214-2304 1- 2322-23 3 2330 → 1-		b 0004 1 b 0028 1 b 0031 1- b 0115 1 g 1425-26 2 g 1559 1- G 1617-18 1 g 1717-18 1- g 1718 1 g 1719 2 b 1740 2 g 2116 1 b 2133 2 b 2139 1 g 2149-50 2 g 2152 1 b 2153 1	
Aug. 9 0000-0140 1240-2400	Cont. 1439 2 ← 0051 1- 0117-24 1- 1252 1 1317-44 1 1600 1 1611 1- 1733 1 1814 1- 1830 1 2212 1- 2239 1		C 0125-28 2 g 1438-39 2 b 1551 1 b 1736 1- b 1830 1- b 1831 2 g 1838 1 b 1908 1 b 2213 1-	
Aug. 10 0000-0140 1240-2400	1250-1300 1- 1300-22 1 1322-1425 1- 1440-44 1- 1513-27 1- 1542 1- 1558-1619 1-	Uncl. 1919 1	b 0121 1- g 0121-22 2 C 1811-12 2 b 1816 1 b 1819 1 b 1825 1 b 1829 1	

SOLAR RADIO EMISSION  
SPECTRUM OBSERVATIONS

AUGUST 1959

Fort Davis

25-580 Mc

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Aug. 10 Cont.	1819-20 1 1829 1- 1843 1 1853-59 1 2041-43 3		b 1843 1 g 1856-57 2 g 1857-58 1 g 1859 1 g 1915 1 g 1915-16 1 b 1926 1- b 1958 1 g 1958-59 2 g 2018-19 1 b 2036 1 g 2054 1 b 2122 1- g 2124 1- g 2158 2 g 2159 1 b 2214 1 g 2216-17 1 g 2218 1 g 2219 1 g 2239-40 1 g 2247 1 g 2248 1 b 2249 1 g 2308 2 g 2310 2 g 2332 2	
Aug. 11 0000-0140 1615-2400	Gont. 1935-36 2 Cont. 1941 2 0019 1- 1808 1 2058-2114 1- 2227 1		b 0014 1- g 0015 1 G 0016-17 2 g 1658 1 b 1738 1- g 1808 1- g 2120 2 g 2149 1- b 2150 1 g 2153 1 b 2255 1	
Aug. 12 0000-0135 1240-2400	Gont. 1824 2 Gont. 1950-52 3 0001 1 0057-0102 1- 1439 1- 1528 2 1544-45 2 1618 1 1801-15 1 1829-39 1 1856-57 1- 1953 1- 2133-34 1	Uncl. 1452 2	b 0001 1 b 0052 1 g 1259 2 g 1400-01 2 g 1440 2 b 1444 2 b 1446 1 b 1448 2 G 1451-52 2 b 1453 1- g 1454 1 g 1807 1 G 1809-10 2 g 1827 1- g 1830 1- G 1834-37 2 g 1839 2 g 1950 1	
Aug. 13 0000-0135 1240-2400	1249-1402 2 1402-44 1 1444-59 2 1459-1505 3 1505-36 1 1543-1705 1- 1941-44 1 2236-49 1- 2318-28 1- 2328 → 1	Uncl. 2305 1	b 1359 1 g 1449 1- g 1450 2 G 1457-58 2 g 1701 1 g 1705 1 g 1856 2 g 2123 1 b 2159 1	
Aug. 14 0000-0135 1245-1514 1522-1648 1653-2400	Cont. 2011-12 3 ← 0022 1 0022-38 2 0038-0100 1 0100-07 2 0107-24 1 1512 2 1609 2 2217-18 2		b 1250 1 b 1254 1 g 1255 1 b 1406 2 b 1409 2 b 1410 1- g 1512 2 g 1532 2 g 1535 1- b 1538 1 b 1716 1- b 1741 1	

## IVm

AUGUST 1959

Fort Davis

25-580 Mc

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III Fast Drift Bursts	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Aug. 14 Cont.			g 1828 1 b 2011 3 b 2031 2 b 2056 1 b 2215 1	
Aug. 15 0000-0130 1240-2400	0013-14 2 0023-24 1- 1621 1 1827-28 1 1833-34 1- 2018-19 2 2329-30 1	Uncl. 1500 3 Uncl. 1503-08 2 Uncl. 1731 1 Uncl. 1759 1 Uncl. 1859 1 Uncl. 2354 3	C 0013-14 2 g 1459-1500 2 b 1620 b g 1828 2 g 1848 1 C 2019 2	Unclassified burst 1503-08 has some characteristics of a slow drift burst.
Aug. 16 0000-0130 1240-2400	Cont. 1838-39 3 Cont. 2047 2 1250 1 1601-05 1 1621-42 1- 1642-59 1 1716-1841 1 1857-1946 1- 2015-26 1- 2056-57 1 2150 1 2341-58 1	Uncl. 1415 1- Uncl. 1550 1 Uncl. 1732 2	g 1245 1 G 1247-49 3 g 1323-24 1 g 1400 2 g 1405 1- g 1407 3 b 1414 1- g 1423-24 1- g 1434 1 b 1552 2 g 1622-23 2 g 1749-50 1 b 2232 2 g 2340 1 b 2358 2	
Aug. 17 0000-0130 1240-2400	Cont. 1355 3 Cont. 1722-23 3 Cont. 2048-50 3 0111-24 1- 1249-1304 1- 1304-1401 1 1440-50 1 1520-39 1 1607-1740 1 1740-1801 1- 1801-1908 1 1908-13 1- 1913-24 1 1955-2010 1 2010-11 3 2011-21 1 2021-25 2 2025-48 1 2048-55 3 2055-2117 1 2150-57 2 2212-31 2 2233-2327 1 2327 — 1	Uncl. 1354-55 3 Uncl. 1443 2 Uncl. 2041 2 Uncl. 2052-59 3 Uncl. 2143-45 2	b 0015 1 b 0055 1- b 1302 1 g 1315-16 2 g 1355 3 g 1449 1 g 1516 3 b 1521 2 g 1524 2 b 1608 2 g 1629-30 1 b 1645 2 g 1646 2 b 1701 2 g 1722 3 g 1746 2 g 1922 1 g 1923 1 C 2000-01 1 g 2047 2 g 2048-49 3 b 2155 1 g 2202 2 b 2203 2 b 2217 1 b 2218 2 g 2324 3 g 2343-44 3	2052-59 Unclassified burst has some characteristics of a slow drift burst.
Aug. 18 0000-0125 1240-2400	Cont. 1353-57 1 Cont. 1419-20 1 Cont. 1423-25 1 Cont. 1425-33** 2 Cont. 1433-36** 1 Cont. 1459-1501** 1 Cont. 1501-20** 2 Cont. 1520-21** 3 Cont. 1521-25 1 Cont. 1537-38** 2 Cont. 1540 1 IV Cont. 1717-22** 1 IV Cont. 1722-23 2 IV Cont. 1723-35 3 IV Cont. 1735-38 2 IV Cont. 1738-50 3 IV Cont. 1750-1803 2 IV Cont. 1803-10 1 IV Cont. 1827-35 1 IV Cont. 1838-53 1 IV Cont. 1917-22 2 IV Cont. 1921-22 3 Cont. 1934-35 3 IV Cont. 1959-2002 1 IV Cont. 2002-07 2 IV Cont. 2022-27 2 IV Cont. 2029-39 1 IV Cont. 2039-43 2 IV Cont. 2043-49 3			**Continuum resolving at times into fast drift bursts.

## SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

## Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks						
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
Aug. 18 Cont.	IV Cont. 2049-2113 2									
	IV Cont. 2113-27 1									
	IV Cont. 2220-25** 2									
	IV Cont. 2239-43 2									
	← 0118 1			Uncl.	1807-08	2	b	0035	2	**Continuum resolving at times into fast drift bursts.
	1247-1320 1			Uncl.	1858-59	3	g	1244	3	
	1400-05 2			Uncl.	1919-20	2	G	1245-46	2	
	1434-51 1			Uncl.	1934-35	3	g	1247	2	
	1535-37 1			Uncl.	1940	2	g	1248	3	
	1558-1604 1-			Uncl.	2141	2	C	1249-52	2	
	1626-40 1			Uncl.	2159	2	g	1253	2	
	1701-02 2			Uncl.	2224-26	3	C	1258-59	3	
	1702-23 1-			Uncl.	2228-29	3	C	1300-05	3	
	1807-08 2						g	1306	2	
	1811-27 1						C	1307-08	2	
	1853-1901 1						b	1332	1	
	1937-56 1						g	1401	2	
	1956-57 2						g	1404-05	2	
	1957-59 1						C	1442-44	2	
	2015-19 1						C	1445-47	2	
	2138-46 2						b	1528	1	
	2223-30 2						C	1528-29	2	
							C	1534-38	2	
							g	1607	2	
							C	1619-21	3	
							b	1627	3	
							g	1642-43	2	
							g	1644	3	
							b	1657	1	
							C	1659-1702	2	
							g	1704	3	
							C	1703-07	1	
							b	1714	2	
							C	1713-19	2	
							g	1720	1	
							g	1750-51	3	
							g	1845	2	
							g	1857	2	
							b	1921	3	
							g	1934-35	3	
							g	1941	2	
							b	1941	1	
							g	2138-39	2	
							g	2141-42	2	
							g	2145	2	
							C	2220-25	2	
							C	2226-27	2	
							g	2228-29	2	
							C	2231-33	2	
							b	2245	1	
							b	2246	1	
							g	2250	1	
							b	2252	2	
Aug. 19 0000-0125 1245-2400	Cont. 1347-48 2									
	0054 2	Uncl.	1319-20	3	g	0105	2			
	1258 1	Uncl.	1322-24	3	g	1306	2			
	1321 1	Uncl.	1347	3	g	1310	1			
	1424-25 1-	Uncl.	1951	3	b	1311	2			
	1511-31 1	Uncl.	2243	2	b	1318	3			
	1548-49 3				g	1319	3			
	1618 2				g	1322-24	3			
	1640-43 1-				b	1345	2			
	1713-14 1-				g	1346-47	3			
	1723 1				b	1424	2			
	1751-1808 1				g	1434	2			
	1826 1-				b	1449	3			
	1848-56 2				b	1521	1			
	1909-22 1				b	1618	2			
	2023-28 2				b	1704	2			
	2046 1				g	1705	2			
	2103-04 1				g	1755	3			
	2140-49 2				C	1756-57	3			
	2231 1				g	1758	2			
	2240-46 1				C	1848-51	3			
	2310 1				g	1855-56	2			
	2333 1				g	1909	1			
	2345 1				b	1931	1			
	2359 1				g	2048	2			
					b	2103	1			
					b	2149	2			
					g	2244	1			
					g	2246	3			
					g	2359	2			
Aug. 20 0000-0027 0106-0125 1255-2400	Cont. 1846-47 2									
	Cont. 1911-12 3									
	Cont. 1933-37 3									
	0001 1-	Uncl.	1940	1-	g	0002	2			
	0108-14 1				g	0114	2			
	1340-41 2				g	1311	1			

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVo

AUGUST 1959

Fort Davis

25-580 Mc

Date and Observing Times (U.T. 1959)	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Aug. 20 Cont.	1546-49 1- 1556 1 1609 1 1631-33 1- 1652-56 1 1702-10 1- 1727-38 1- 1816-19 1- 1828-50 1 1905 2 1928-29 1 1933-35 2 1935-42 1 1942-43 2 1943-46 1 1952 2 2000-01 1- 2002 2 2003-04 1 2041-44 1 2121-22 1 2212 1 2321-54 1		b 1421 1 b 1435 3 b 1636 2 g 1841 1 g 1845 1 g 1846 2 g 1850 2 g 1851-52 2 b 1852 1 g 1904-05 2 g 1910-11 3 g 1929 1 G 1933-35 3 g 1937 2 g 1938 1 g 1940 1 b 1942 2 b 1951 1 G 2016-18 3 G 2020-23 2 g 2113 1 b 2233 1 b 2300 1 g 2303 1 g 2314 3 b 2315 1	
Aug. 21 0000-0125 1255-2400	0025-29 1- 0052 1 0111-17 2 1255-1304 1 1502-04 2 1506 1- 1558-1602 2 1624-25 1 1718 1 1806 1 1902 2 1922-29 1 1952 2 2334 1	Uncl. 1622-23 1 Uncl. 1714 2 Uncl. 1752 2 Uncl. 1801 2 Uncl. 1824 2 Uncl. 1859 3 Uncl. 1912-13 2	g 1257 1 b 1322 1- g 1325 2 g 1342 2 b 1430 2 G 1448-51 3 g 1555-57 3 g 1602 2 g 1603-04 2 b 1606 1 g 1736-37 1 b 1745 1 g 1748 2 g 1757-58 2 b 1759 1 b 1805 2 b 1824-25 2 g 1835-36 3 G 1849-57 3 g 1907-09 3 g 1912 1 g 1937-38 3 b 1942 1 g 1951-52 2 g 2006-07 3 b 2050 2 g 2051-52 2 G 2059-2104 3 g 2141 2 b 2142 2 b 2151 1 b 2152 3 b 2224 2 g 2232-33 1 G 2301-02 2 g 2303 2	
Aug. 22 0000-0125 1255-2400	Cont. 1917-2140 1 IV Cont. 2140 → 2 1349 1 1523-29 2 1540-1604 1 1637-41 1 1649 2 1818-24 2 1852-1904 1 2002-03 3 2100-16 2 2127-30 3 2130-2211 2	Uncl. 0001 2 Uncl. 1757 2 Uncl. 1821 2	g 0005 2 g 1355 2 b 1403 3 b 1406 1 b 1519 2 b 1737 2 g 1740 1 b 1741 2 b 1807 1 b 1808 1 g 1813-14 2 g 1815 2 g 1819 2 g 1820 2 b 1829 2 b 1844 2 b 1903 2 g 1942-43 3 g 2241-42 3	Note: Type IV con- tinuum during 1959 Aug. 22-27 is at low frequencies (25-300 Mc/s)
Aug. 23 0000-0125 1255-2400	IV Cont. ← 0125 2 IV Cont. 1255-1320 1 IV Cont. 1320-1400 2 IV Cont. 1400 → 3 1306-33 2 1333-57 3	Uncl. 0109-10 2	g 1304 3 g 1305 3	

SOLAR RADIO EMISSION  
SPECTRUM OBSERVATIONS

AUGUST 1959

Fort Davis

25-580 Mc

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Aug 23 Cont.	1431-32 3 1459-1529 3 1640-47 3 1659-1710 3 1740-43 3 1758-1800 3 1822-55 3 1922-33 3 2013-14 3 2219-32 3		b 1332 2 b 1339 3 b 1347 3 b 1439 2 C 1440-41 2 g 1450-51 1 g 1615 3 g 1626 3 g 1742 3 g 1809 2 C 1810-11 2 b 2241 2	
Aug. 24 0000-0125 1255-2400	IV Cont. ← 0005 3 IV Cont. 0005-0038 2 IV Cont. 0038-0118 1 IV Cont. 1255-1310 1 IV Cont. 1310-1400 2 IV Cont. 1400 → 3 1336 2 1430 1 1755 3 2237-38 1	Uncl. 2230 3	b 0037 3 g 0110-11 3 g 1422-23 2 b 1523 3 b 1653 3 b 2105 2 b 2122 2 g 2124 2 g 2125 1 g 2128 1 b 2138 2 b 2139 1 C 2339-41 3	1853-1948 Continuum has marked structure appear- ing like many fast drift bursts.
Aug. 25 0000-0120 1255-2400	IV Cont. ← 0040 3 IV Cont. 0040-0100 2 IV Cont. 0100-0116 1 IV Cont. 1255-1320 1 IV Cont. 1320-1400 2 IV Cont. 1400 → 3 1540-58 3 1642-1732 3 1806-1915 3 1958-2026 3 2048-2101 3 2118-35 3 2154-56 3 2221-2241 3 2304 2		b 0040 2 g 0047 1 C 1258-59 3 b 1947 3 g 2017 3 g 2247 2 g 2249 3 g 2249 2 g 2251 2	1258-59 these fast drift bursts are divided in frequency 580-300 Mc/s and 115-25 Mc/s. 1805-20 continuum has faint structure.
Aug. 26 0000-0110 1255-2400	IV Cont. ← 0033 3 IV Cont. 0033-0110 2 IV Cont. 1255 → 2 1315-19 2 1325-44 2 1356-57 2 1414-30 2 1439-1610 2 1610-2137 3 2140-58 2 2215-2352 2	Uncl. 1318 3 Uncl. 1645-46 3 Uncl. 1708-09 2 Uncl. 1715-18 2 Uncl. 2106-07 3 Uncl. 2141 2 Uncl. 2202 2 Uncl. 2210 2	g 0005 3 g 0032 2 g 1255-56 2 b 1718 2 b 1733 2 b 1911 2 b 1914 2 g 1921 2 b 1922 2 b 1923 2 b 1926 2 g 1935 2 b 1947 2 g 1951-54 2 g 1955-2000 2 b 2013 3 b 2014 2 b 2114 3 g 2203 3 g 2208 2 g 2209 2 b 2222 2	
Aug. 27 0000-0115 1255-2400	IV Cont. ← 0113 2 Cont. 1255 → 1 0003-26 2 1255-1429 1 1429-1519 2 1519-40 1 1540-1759 2 1759 → 1	Uncl. 1431-33 3 Uncl. 1603-04 3 Uncl. 1610 2 Uncl. 1641 3 Uncl. 1656 3 Uncl. 2052-54 3	g 1357 2 g 1432 3 b 1511 1 g 1514-15 1 g 1538-39 2 C 1617-19 3 b 1732 2 g 1807-08 3 g 1809 3 g 1824-25 3 b 1912 2	

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVq

AUGUST 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
Aug. 27 Cont.							b	1924	2	
							b	1945	1	
							b	1959	3	
							g	2000	3	
							g	2001-02	2	
							g	2004	2	
							g	2024	2	
							b	2040	2	
							g	2054	3	
							g	2055-56	3	
							g	2059-2100	2	
							g	2102	2	
							g	2122	1	
							g	2125	1	
							g	2205-06	2	
Aug. 28 0000-0115 1255-2400	Cont. Cont.	← 0111 1255 → ← 0112 1255-1818 1818-20 1820 →	1 1 1 1 2 1	II.	0038-48	2	g	0030	1	
							g	0031	2	
							b	0038	1	
				Uncl.	1754	3	g	1313-14	2	
				Uncl.	1816	2	b	1431	2	
				Uncl.	1841	2	g	1433	2	
				Uncl.	1848	3	g	1434-35	3	
				Uncl.	1939	3	b	1442	3	
				Uncl.	2115	2	b	1446	2	
				Uncl.	2313	3	R	1452	2	
							g	1557	2	
							b	1610	1	
							g	1634	3	
							g	1732-33	1	
							g	1812	2	
							b	1830	2	
							b	1852	1	
							g	1859	3	
							b	1903	3	
							g	1905	2	
							b	1909	1	
							g	1920	3	
							g	1928	3	
							b	2007	1	
							g	2051-52	3	
Aug. 29 0000-0115 1255-2400	Cont. Cont. Cont. Cont. Cont. Cont. Cont.	← 0111 1255-1459 1459-1645 1645-1800 1800-05 2217-2322 2322 →	1 1 3 2 1 2 3				Uncl.	1657	3	
		← 0109 1305-1414 1414-17 1417-42 1442-1502 1502-1645 1645-1816 1816-1913 1951-2014 2059-2101 2155-2213 2219-2322 2322 →	1 1 2 1 2 3 2 1 1 1 1 2 2 3	Uncl.	1718	2	G	0020-22	2	
				Uncl.	1724	2	g	1309-11	2	
				Uncl.	1735	2	g	1332	3	
				Uncl.	1757	3	b	1335	2	
				Uncl.	1849	2	g	1346	3	
				Uncl.	1851	2	b	1405	3	
				Uncl.	1940	2	g	1417-18	2	
				Uncl.	2103	2	b	1449	2	
				Uncl.	2229	1	b	1457	2	
				Uncl.	2234-37	2	b	1506	2	
							g	1603	3	
							g	1728-29	3	
							b	1740	3	
							b	1742	2	
							g	1753-54	3	
							g	1803	3	
							b	1810-11	1	
							G	1835-36	3	
							g	1839	3	
							b	1841	2	
							g	1937-38	1	
							R	1948	3	
							g	2010-11	2	
							b	2015	3	
							b	2018	2	
							b	2110	3	
							b	2113	2	
							b	2125	3	
							g	2135-36	2	
							b	2215	3	
							g	2216-17	3	
							b	2238	2	
							b	2338	3	
							b	2339	2	
							b	2341	3	
Aug. 30 0000-0110 1255-2400	Cont. Cont. Cont. Cont. Cont.	← 0110 1255-1420 1420-1600 1857-2100 2100-2200 2200-2300	3 2 1 2 1 1-							

1757 Reverse drift  
pair



# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

AUGUST 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
Aug. 30 Cont.	← 0026	3		Uncl.	1349	2	g	1401	2	
	0026-42	2		Uncl.	1752-53	2	g	1412-13	1	
	1255-1420	2		Uncl.	1756-57	2	g	1517	3	
	1420-29	1		Uncl.	1815	3	g	1525	3	
	1429-1505	2		Uncl.	1822	2	g	1526	3	
	1505-36	1		Uncl.	1846	3	g	1549-50	2	
	1536-1627	1-		Uncl.	1904	2	g	1551	2	
	1712-20	3		Uncl.	2051	3	g	1656	1	
	1729	1		Uncl.	2055	3	b	1657	2	
	1807	2		Uncl.	2228	3	g	1659	3	
	1817-39	1		Uncl.	2230-32	2	C	1700-03	3	
	1853-2213	2		Uncl.	2244-46	2	b	1705	1	
	2213-43	1-		Uncl.	2249-51	3	b	1706	1	
	2304-13	1-					b	1710	1	
	2331-35	1-					C	1711-18	3	
	2338-52	1					b	1741	2	
							b	1743	2	
							g	1746	3	
							g	1748-49	3	
							b	1751	2	
							b	1758	3	
							g	1806-07	3	
							b	1810	2	
							g	1828-29	3	
							g	1849-50	3	
							b	1851	2	
							b	1853	2	
							b	1855	1	
							g	1938	2	
							b	1939	2	
							b	1953	1	
							b	1959	2	
							b	2000	1	
							g	2001-03	2	
							g	2007	2	
							g	2008	2	
							b	2020	3	
							g	2051-52	3	
							g	2053	3	
							b	2055-56	3	
							g	2214	2	
							g	2221-22	1	
							g	2224	2	
							g	2226	2	
							b	2228	3	
							g	2231-32	3	
							g	2240-41	3+	
							g	2244	2	
							g	2246	2	
							b	2248	2	
							g	2250	3	
							b	2340	1	
							b	2341	1	
							b	2344	1	
							C	2347-50	3	
Aug. 31	Cont.	0045-0107	2							
0000-0110	Cont.	1710-11	3							
1255-2400	IV Cont.	1859-1903	3							
	IV Cont.	1903-09	2							
	IV Cont.	1909-16	1							
		0045-0105	3	Uncl.	1502	2	g	0000	2	
		1255-1312	1	Uncl.	1504-05	1	g	1321-22	3	
		1321-44	1-	Uncl.	1554-57	2	b	1325	3	
		1357-1413	1	Uncl.	1731-32	2	g	1332	3	
		1413-19	2	Uncl.	1734	3	g	1336	3	
		1419-32	3	Uncl.	1844-45	2	g	1337	2	
		1432-1505	1				g	1338	2	
		1505-10	2				g	1339	2	
		1524-33	1				b	1343	1	
		1547-1624	1-				g	1352	2	
		1639-49	2				g	1354-55	3	
		1649-1715	1				b	1356	2	
		1737	2				g	1357-58	2	
		1756-1826	1				g	1359-1400	3	
		1847-1858	1				b	1418	1	
		1858-1924	2				g	1431	2	
		1934-1948	1				g	1433	1	
		2000-2020	1				g	1500	3	
		2114-2200	1				b	1503	2	
							C	1514-15	3	
							C	1518-23	3	
							g	1527-28	2	
							g	1537-38	3	
							g	1540	2	
							b	1544	3	
							b	1545	1	
							b	1607	1	
							g	1608	3	
							g	1609	2	
							g	1610	3	
							g	1616-17	3	
							g	1618	2	



# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVs

AUGUST 1959

Fort Davis

25 -580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
Aug 31 Cont.							g	1619	2	
							g	1621	2	
							b	1622	2	
							g	1623	3	
							b	1635	1	
							g	1649	2	
							b	1704	1	
							g	1709-11	3	
							b	1720	2	
							b	1722	2	
							b	1730	2	
							g	1738	2	1738 Divided frequency 1 at 50-25, 2 at 200-125 Mc/s.
							b	1742	2	
							b	1747	2	
							g	1751	3	
							b	1757	2	
							b	1805	3	
							G	1807-10	3	
							g	1820-21	3	
							g	1824-25	3	
							g	1826-27	3	
							b	1831	3	
							b	1843	2	
							g	1844	3	
							b	1852	3	
							g	1853-55	3	
							g	1857-59	2	
							G	1859-1901	3	
							G	1901-17	2	
							G	1917-18	3	
							g	1919	2	
							g	1923-24	2	
							g	1934	3	1934 U burst.
							b	1937	3	
							b	1947	2	1947 U burst.
							g	2025	2	
							g	2026	2	
							b	2048	1	
							g	2049-51	2	
							G	2052-55	2	
							b	2109	2	
							G	2141-50	2	
							G	2151-52	2	
							G	2218-44	2	
							g	2317-18	2	
							G	2328-31	2	
							G	2335-39	2	

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

SEPTEMBER 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
Sept. 1 0000-0110 1255-2400	IV Cont.	914-17	1							
	IV Cont.	1920-22	1							
	IV Cont.	1927-32	2							
	IV Cont.	1932-34	3							
	IV Cont.	1934-39	2							
	IV Cont.	1940-41	1							
	IV Cont.	1945-50	2							
	Cont.	1952-55	3	Uncl.	1820-28	2	G	0036-38	1	
	Cont.	1958-1601	3	II.	1939-45	3	G	0040-43	2	
	Cont.	2022-23	1				G	0102	1	
	Cont.	2037-39	2				G	0104	1	
							G	0105-07	2	
							G	1419-21	3	
							G	1421-26	2	
							G	1627-28	1	
							b	1632	1	
							G	1730-31	2	
							b	1756	1	
							G	1759-1806	1	
							G	1810-1816	2	
							G	1816-1818	3	
							G	1911	1	
							b	1914	1	
							b	1923	1	
							G	1935	1	
							G	1946	2	
							G	1952-55	3	
							G	1955-2006	2	
							G	2119-20	1	
							b	2207	1	
							G	2213-15	1-	
							G	2229	3	
							G	2230-36	1-	
Sept. 2 0000-0105 1255-2400	← 0105	1-								
	1255-1333	1-					b	1313	2	
	1333-1513	2					b	1405	1	
	1513-1600	1-					G	1605-08	2	
	1600-1620	1		II	1608-15	3	G	1611-14	3	
	1620-1900	1-					b	1657	1	
	1900-2300	1					b	2307	2	
	2300 →	1					G	2322-23	1	
Sept. 3 0000-0105 1255-2400	Cont.	1420-1620	2							
	Cont.	1425	3							
	← 0105	1					G	1425	2	
	1255-1420	1					b	1448	3	
	1420-1620	2					G	1504	3	
	1620-1700	1					G	1525	3	
	1700 →	1-					G	1555	3	
							G	1600-01	3	
							G	1604-06	2	
							b	1645	1	
							b	1647	2	
							G	1703	3	
							G	1741-43	3	
							b	1744	1	
							G	1753	1	
							G	1800-01	3	
							G	1801-11	1	
							G	1815-20	2	
							G	1823-25	2	
							G	2336-39	1	
Sept. 4 0000-0105 1256-2105 2109-2400	← 0105	1-		Uncl.	1852-1930	2				
	1256-1320	1								
	1320-1500	1-								
	1500-1607	1					G	1328-30	1	
	1607-1626	2					b	1426	1	
	1626-1838	1					G	1822-23	1	
	1838-2005	2					G	1829-36	2	
	2005-2025	1					G	1840-42	1	
							G	1845-50	2	
							G	1852	2	
							b	1922	1	
							G	1924	2	
							b	1927	1	
							b	1929	1	
							b	2032	2	
							G	2321-25	2	
Sept. 5 0000-0105 1300-2400	Cont.	1557-59	2	Uncl.	1558	3	b	1542	1	
	0010-0050	1-		Uncl.	1559	3	G	1553-54	2	
	1431-1522	1-		II	1603-10	2	G	1555-56	1	
	1625	1-					G	1556-1600	3	
	1644	1-					G	1601	2	
	1822-1959	1-					G	1602	2	
	2107-2146	1-					G	1603-04	2	
	2344	1-					G	1606-07	2	
							G	1609-10	1	
							G	1806	1	
							G	1807-08	1-	

1852-1930 These un-  
classified bursts  
have many features  
of Type III bursts.

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVu

Fort Davis

SEPTEMBER 1959

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum			Type II (Slow Drift Bursts) Unclassified			Type III (Fast Drift Bursts)			Remarks
	Bursts* or Continuum	Time	Int	II or Unclass	Time	Int	Act	Time	Int	
Sept. 5 Cont.							g	1956-57	2	
							G	1959	1	
							g	2012	1-	
							g	2052	1-	
							G	2113	2	
							b	2116	2	
							G	2119	2	
							g	2145	1	
							g	2154	1	
							G	2157-58	3	
Sept. 6 0000-0100 1255-2400		1302 1439-1530 1611-13	1- 1 1-				g	1559	1	
Sept. 7 0000-0055 1302-2400		1445 1739 1924-1930 2111-2117 2212-2220 2220-2231 2231-2238 2248-2254 2309-2327 2357-2358	1- 1- 1- 1- 1- 1 1- 1- 1- 1-				g	2129	1-	
							b	2233	1-	
Sept. 8 0000-0045 1255-2400							g	0026	1	
							g	0028	1	
							g	0033	1-	
							b	1559	1	
							G	1623-24	2	
							b	2345	1-	
Sept. 9 0000-0045 1255-2400	Cont.	2235-37 1322 1658 1911-2012 2028-2033 2056-2111 2215-2226 2250-2259 2313	1 1- 1- 1- 1- 1- 1- 1- 1-	Uncl.	1835	1	b	1323	1	
							g	1523	1-	
							g	1711-12	1	
							g	1800	1	
							b	1802	1-	
							g	1824-25	2	
							b	1837	1-	
							g	2152	1	
							g	2153-54	1-	
							g	2235	1	
							g	2237	1-	
							g	2339	1-	
Sept. 10 0000-0045 1300-2400							G	0013-14	1	
		1300-23 1346-2018 2018-2100 2100 →	1- 1- 1 1-	Uncl.	1445	1	b	1513	2	
							b	1857	1	
Sept. 11 0000-0045 1300-2400		← 0045 1300-1315 1315-1355 1355-1750 1750 1750-1810 1810-1900 1900-1930 1930-2058 2058-2103 2103 →	1- 1- 2 1- 2 1 2 1 1- 2 1-				g	1713	1	
							g	1809	3	
							g	1810-11	1	
							g	1813	1	
							b	1832	1	
							b	1833	1-	
							g	1959-2000	1	
							g	2023	2	
							G	2157-59	2	
Sept. 12 0000-0045 1300-2400	Cont. Cont. Cont.	2139-40 2259-2300 1300-1945 ← 0045	2 3 1- 1-				b	0029	1	
							g	1327	2	
							g	1340	1	
							b	1445	1-	
							b	1835	1	
							G	2039	3	
							b	2122	3	
							b	2156	1	
							b	2213	1-	
							g	2222-23	2	
							b	2226	2	
							g	2224-25	1-	
							b	2232	1	
							g	2259-2300	2	
							g	2305-06	1	
							b	2349	2	
							b	2351	1-	
Sept. 13 0000-0040 1300-2400	Cont. Cont. Gont.	1645-56 1656-1823 1823-1926	1 2 1							2122 U burst

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

SEPTEMBER 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum Time Int	II or Unclass Time Int	Act Time Int	
Sept. 13 Cont	Cont. 1940-41 3 Cont. 2053-54 1 1326 1- 1351-1354 1- 1413 1- 1428-1526 1- 1526-1531 1- 1531-1620 1- 1620-1644 1 1644-1823 2 1823-1915 1 1915-2128 1- 2202-2211 1- 2242 1-		C 1320-1322 2 b 1421 1 g 1437 1 g 1644-46 2 g 1650-52 2 b 1712 1 g 1716 1 g 1723 2 b 1823 1 g 1840 2 g 1843 3 g 1844 1 b 1845 3 b 1937 1 g 1940-41 3 g 2053-54 2	2053 Neg. slope fast drift burst.
Sept. 14 0000-0040 1300-2400	Cont. 1827 1- Cont. 1833-35 3 Cont. 1842-1846 1- 1922 1- 1937-1952 1-		g 1327 1 g 1437 1 g 1550 1- C 1523-24 2 g 1621 1 g 1713 2 g 1833-35 3	
Sept. 15 0000-0040 1300-2400	1321-29 1- 1435 1- 1626-1733 1- 1802 1- 1825 1- 1947-2113 1- 2222-31 1- 2319 1-	Uncl. 2117-2139 2 II. 2124-2127 2 II. 2135-2144 3	g 2248 1	2117-2139. This unclassified burst probably forms part of succeeding Type II burst.
Sept. 16 0000-0035 1315-2400	2011 1-		g 1844-45 2	
Sept. 17 0000-0035 1315-2400	1315-1530 2 1530-1600 1 1600-1620 2 1620-1800 1 1800-1850 2 1850 → 1		g 2305-07 2	
Sept. 18 0000-0035 1315-2400	← 0035 1 1315-1650 1-	Uncl. 2226-27 3 Uncl. 2229-31 2	g 2033 1- b 2304 1	2226-2227 2229-2231 These unclassified bursts have some features of a Type II burst.
Sept. 19 0000-0035 1315-2400	Cont. 1932 1 Cont. 1939 2 Cont. 1941-42 2 Cont. 2028-29 3 1442-49 1- 1506-07 1- 1941-43 1- 2010-2012 1- 2230 1- 2332 1-		g 0006-08 1 b 0030 1 g 1447 1 g 1919 1- C 1931-32 2 g 1938-39 1 b 1941 1- C 2027-28 3 g 2033-34 1-	
Sept. 20 0000-0035 1315-2400	Cont. 1450 1- Cont. 1556-57 2 Cont. 1600-01 2 Cont. 1650 1 1443-44 1 1504-24 1- 1524-1532 1 1532-49 1- 1834-35 1- 1939 1- 2345-50 1-		g 1347-48 1 g 1413-15 1- g 1416 1- g 1417 1- g 1418-19 1- g 1427-28 1- g 1440-42 3 b 1523 1 b 1530 1- b 1532 1- g 1537 1- g 1540 1 g 1556-57 2 g 1600-01 3 g 1602-03 1	

# SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVw

SEPTEMBER 1959

Fort Davis

25-580 Mc.

Date and Observing Times (U.T.) 1959	Type I (Noise Storms) and Continuum	Type II (Slow Drift Bursts) Unclassified	Type III (Fast Drift Bursts)	Remarks
	Bursts* or Continuum      Time      Int	II or Unclass      Time      Int	Act      Time      Int	
Sept. 20 Cont.			g 1649-50 3 g 1717-18 1 g 1743-44 1- g 1952 1- b 2341 2	
Sept. 21 0000-0030 1315-2400	2242 1- 2307 1-		g 0008 1- b 0010 1- g 0012 1- b 0018 1- b 1928 1-	
Sept. 22 0000-0030 1315-2400	Cont. 1654-55 2 Cont. 1658-59 2 Cont. 2335 2 2030-2130 1- 2320 → 1-		b 1654 2 g 1658 2 g 2000-01 2 b 2004 2 g 2334 2 b 2336 2 g 2345 2	
Sept. 23 0000-0030 1315-2400	← 0030 1- 1317-19 1- 1340-47 1- 1415-20 1- 1446-1546 1- 1613-1620 1- 1718-1722 1- 1804-07 1- 1946-2108 1- 2108-2127 1- 2127-2226 1-		b 1735 1- b 2034 2	
Sept. 24 0000-0030 1315-2400	1315-1344 1-		b 1742 1	
Sept. 25 0000-0025 1315-2400	1342-51 1- 1445-51 1- 1451-1503 1- 1524 1- 1635-36 1- 1718 1- 2358-59 1-		g 1408-09 1 G 1610-18 2 g 1621-23 2 g 1625-26 1- g 1629 1- b 1631 1- g 2355-56 1-	
Sept. 26 0000-0025 1315-2400	1739 1- 2143 1-		g 1745-46 1- g 1811 2 g 1815 3 b 1829 1- g 1901 2 b 1945 3 b 1946 2 G 2027-31 2	
Sept. 27 0000-0025 1315-2400	1655 1-		g 1913 1- b 1915 1- b 1916 1-	
Sept. 28 0000-0025 1315-2400	2327 1-			
Sept. 29 0000-0020 1315-2400	1719 1- 2304-07 1-		g 1605 1 G 2032-34 1 b 2035 1 b 2116 1-	
Sept. 30 0000-0020 1315-2400			b 1332 1-	

## GEOMAGNETIC ACTIVITY INDICES

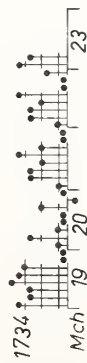
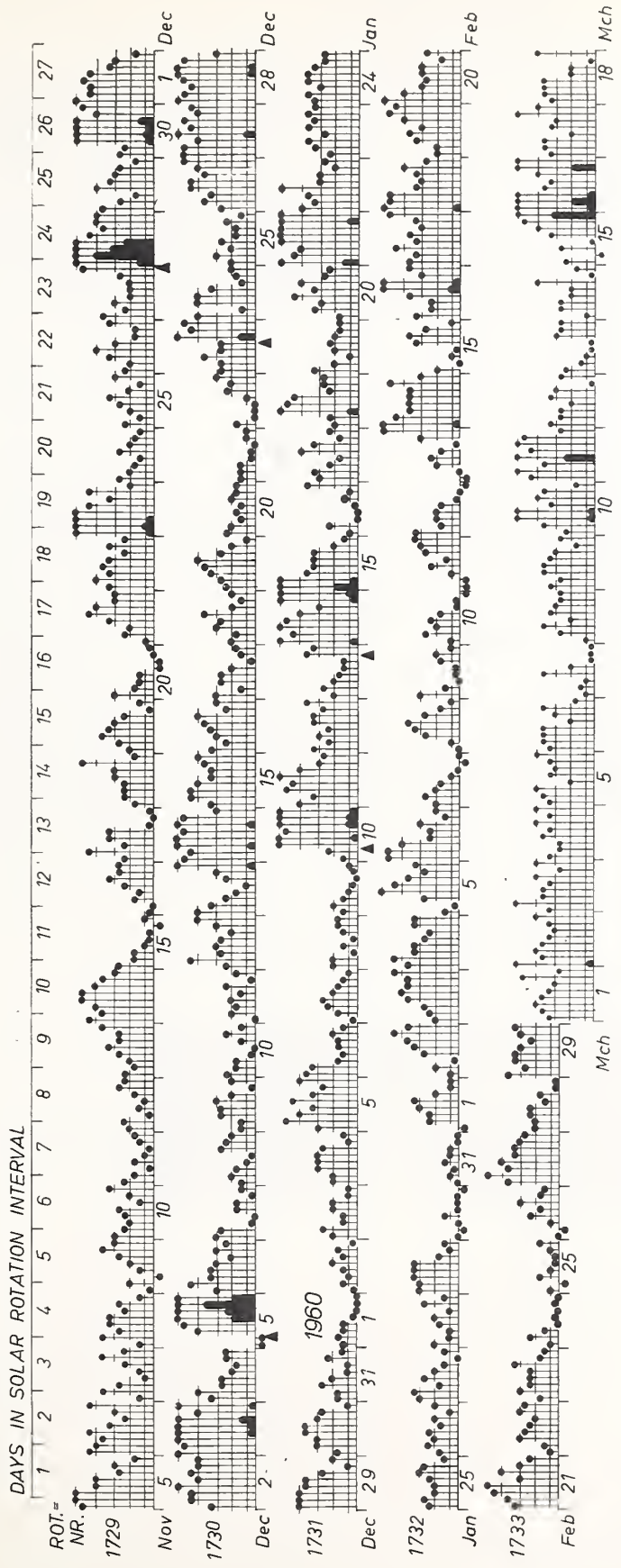
FEBRUARY 1960

Feb. 1960	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	0.4	0o	2+	2+	3o	3+	2o	1o	1o	15o	8	Five Quiet	
2	1.1	1o	2o	1-	3-	3+	4-	4+	4-	21+	15		
3	1.0	2o	2+	3-	4-	4o	4-	4-	4+	26+	19		
4	0.9	4-	4+	3+	3+	3-	2+	3+	3+	26+	18		7
5	1.1	1+	1-	3-	5o	4+	4-	3-	3+	24-	19		9
												10	
6	0.9	5-	5-	4o	2+	2+	3o	1+	2o	24+	19	24	
7	0.2	2o	3-	2o	2-	1o	0+	0o	0+	10o	5	25	
8	0.6	0+	1o	3-	3+	4-	3-	2-	1o	16+	10		
9	0.2	3o	1+	0+	1-	1-	2-	2o	1o	11-	6		
10	0.1	1o	3-	2o	2+	2-	1-	1-	0o	11o	6		
11	0.4	0o	0o	1o	2+	1+	3-	3o	3+	14-	8	Five Disturbed	
12	0.2	3+	2-	2o	2o	2-	1-	0+	0o	12-	6		
13	0.8	0o	0+	2o	2+	2-	1-	3o	5o	15o	11		
14	1.2	5+	4+	4-	4-	4-	4-	5-	3o	32o	29		14
15	0.6	2o	0+	1o	1-	3+	4-	3-	1o	15-	9		16
												17	
16	1.3	3+	2+	2+	4-	6-	5+	3o	4-	29+	27	18	
17	1.2	4-	3+	4+	3+	4-	3o	3+	5-	29+	23	21	
18	1.1	5+	5-	5-	3+	3o	3+	4o	3-	31o	28		
19	1.2	2o	2o	3+	4-	3o	4o	5-	4+	27o	21		
20	0.9	5o	4o	3o	3-	3o	3o	2-	3-	25o	19		
21	1.1	3+	4-	4+	5-	3o	4o	3o	2+	28+	22	Ten Quiet	
22	0.4	1o	1+	3o	3-	2+	2o	3o	3-	18o	10		
23	0.4	2-	3o	2+	2+	2+	3+	2-	1+	18o	10		
24	0.1	1o	2+	1+	0+	1-	0+	1-	0+	7o	4		1
25	0.1	1o	0o	2-	1o	1-	1-	1o	2-	8-	4		7
												9	
26	0.2	0+	0o	1o	2+	2-	3o	2-	1+	11+	6	10	
27	1.1	4-	5-	4-	4o	3+	3+	3o	3-	28+	22	11	
28	0.2	2o	2o	2+	2+	1+	2-	1-	1-	13o	6	12	
29	0.9	4-	3-	3+	3+	3o	2+	3o	3+	25-	16	24	
												25	
												26	
												28	
Mean: 0.69										Mean:	14		

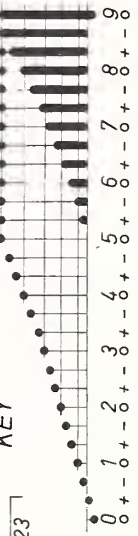


DAYS IN SOLAR ROTATION INTERVAL

ROT. =  
NR.



KEY



▲ = sudden  
commencement

# PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES

Kp till 1960 Febr. 29

(Ks from Wingst and Göttingen till 1960 March 23)

J.B.



# CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

## NORTH ATLANTIC

FEBRUARY 1960

Feb. 1960	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day index	Advance forecasts (J-reports) for whole day; issued in advance by:				Geomag- netic K <sub>Fr</sub>	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-7 Final	1-7 Js	1-7 SDW	1-7 J	Half (1)	Day (2)
1	7o	6+	7-	7o	7	7	6	7	7-	6			6	2	1
2	7-	7-	7o	7-	7	6	7	7	7-	6			6	2	3
3	6+	7-	7-	7-	7	6	7	7	7-	6			6	2	(4)
4	7-	6+	7-	7-	6	6	7	6	7-	7			7	(4)	3
5	6+	6+	7o	7-	6	6	6	6	7-	7			7	2	3
6	6o	6-	7o	7o	7	4	6	7	6+	6			6	(4)	2
7	7-	7-	7o	7o	7	6	7	7	7-	6			6	2	1
8	7-	7-	7+	7-	7	6	7	7	7-	6			6	2	2
9	6+	7-	7o	7o	7	6	7	7	7-	7			7	1	2
10	7-	7-	7o	7o	7	7	7	7	7-	7			7	1	1
11	6+	7-	7+	7-	7	7	7	7	7-	7			7	1	2
12	6+	6+	8-	7o	6	6	7	7	7-	7			7	1	1
13	7-	6+	7+	6-	7	7	7	7	7-	7			7	1	2
14	5o	6-	7+	6o	5	5	7	6	6o	7			7	(4)	3
15	6o	5+	7o	7-	5	6	7	6	6+	7			7	0	2
16	6+	7-	7o	7-	7	6	7	6	7-	6			6	2	(4)
17	6o	6-	7o	6+	6	5	7	7	6+	6			6	(4)	3
18	5+	4-	6-	6-	6	5	6	6	5o	6			6	(4)	3
19	5+	5-	7-	6o	6	5	6	7	6-	7			7	3	3
20	6-	5+	7-	6+	6	5	7	6	6o	7			7	3	3
21	6-	5o	7-	6+	6	5	7	6	6o	7			7	(4)	2
22	6o	5+	7-	7-	6	5	7	6	6+	7			7	2	3
23	7-	6o	7-	7-	6	6	7	7	7-	7			7	2	2
24	7-	6+	7+	7o	6	5	7	6	7-	5		5	7	1	1
25	7-	6o	7o	7o	5	5	7	7	7-	4		4	4	1	1
26	7o	7-	7o	7o	7	6	7	7	7o	7	7		5	1	2
27	7-	6+	7+	7-	7	6	7	7	7-	7	7		6	3	3
28	6+	6+	7o	7o	7	6	7	7	7-	7	7		6	2	2
29	6+	7-	7o	7-	7	6	7	7	7-	7	7		7	3	3
Score: Quiet Periods					P	15	12	24	20	14				12	
					S	13	15	5	9	13				15	
					U	1	0	0	0	1				1	
					F	0	1	0	0	1				1	
Disturbed Periods					P	0	0	0	0	0				0	
					S	0	1	0	0	0				0	
					U	0	0	0	0	0				0	
					F	0	0	0	0	0				0	

( ) represent disturbed values.

COMMERCE - STANDARDS - BOULDER

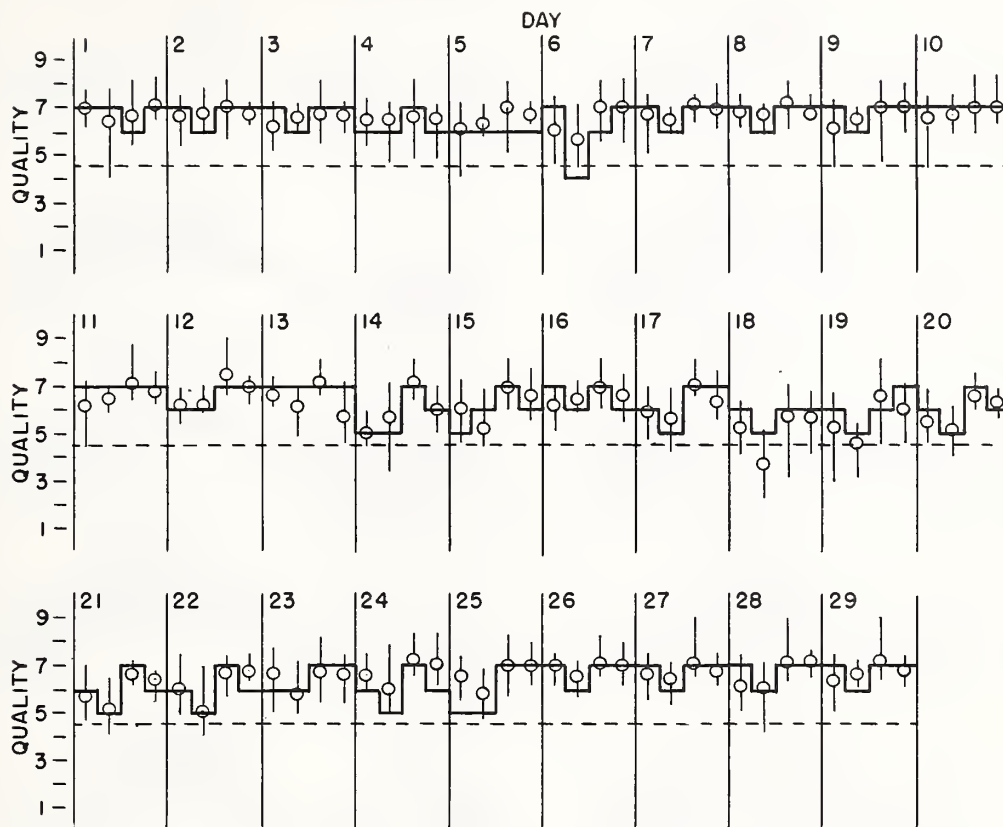
## NORTH ATLANTIC

FEBRUARY 1960

— Short-term forecast

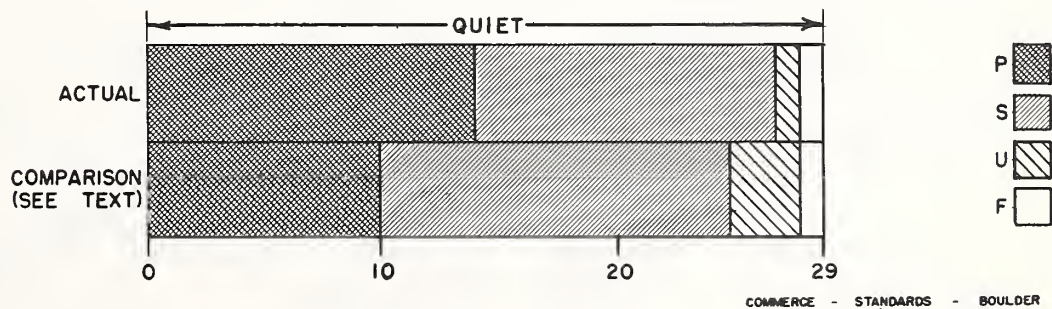
| Range of reports

o Quality figure



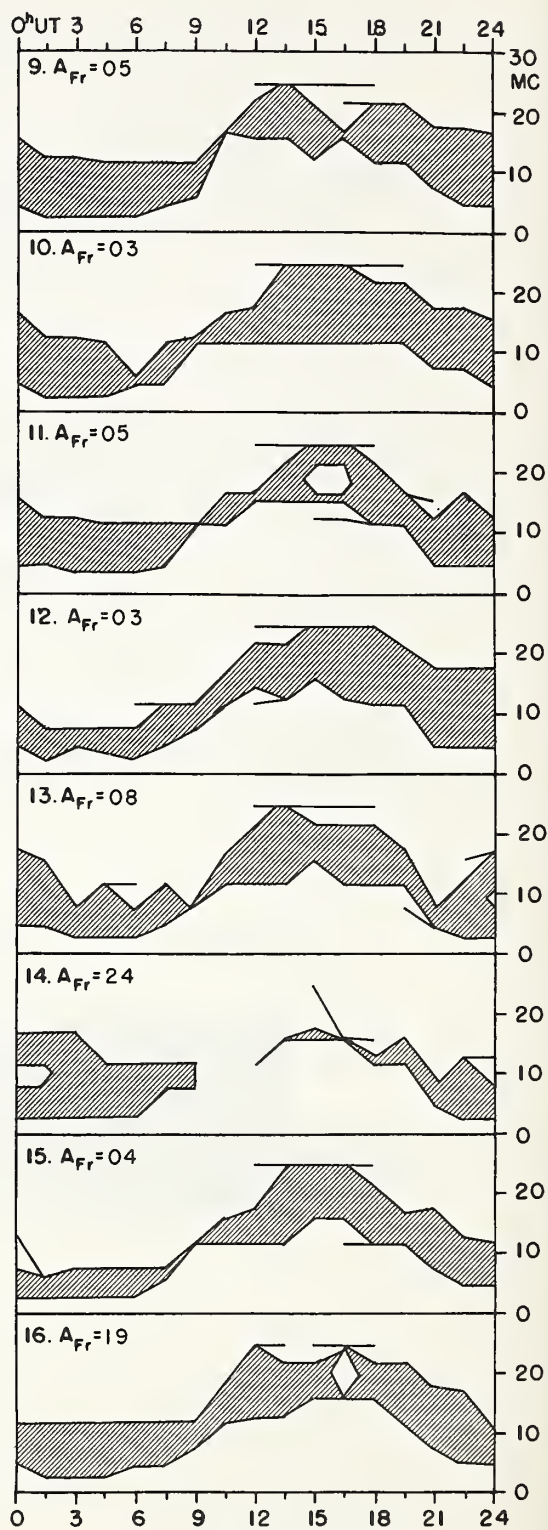
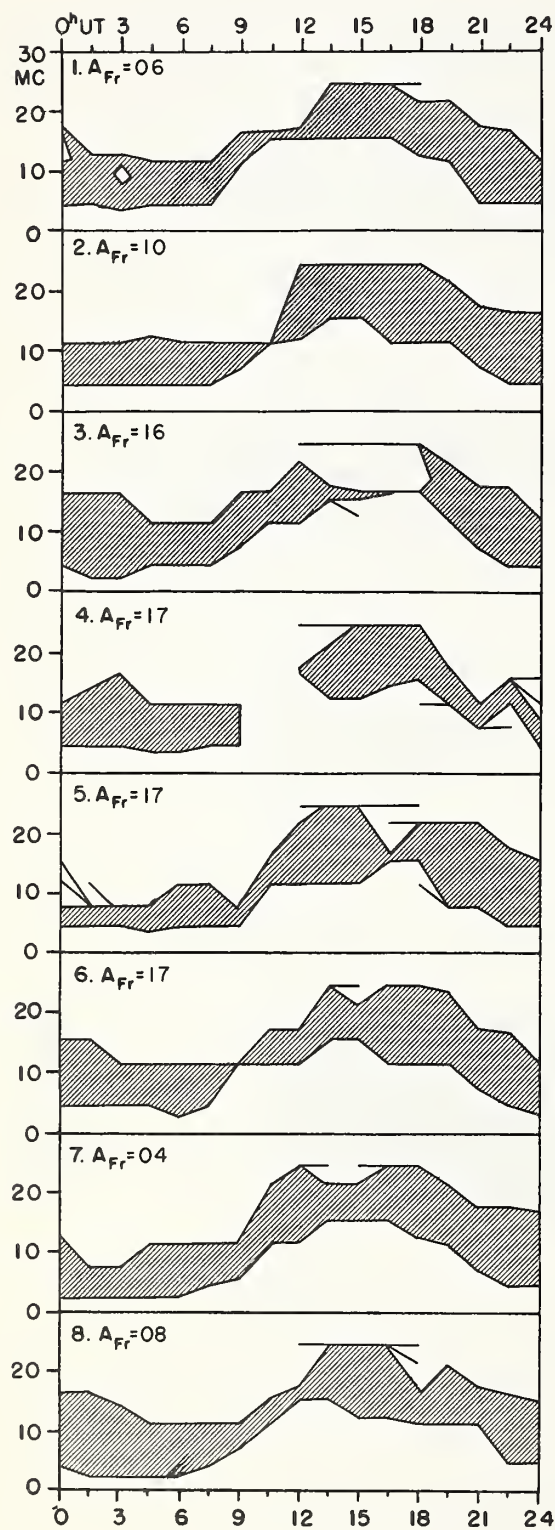
OUTCOME OF ADVANCED FORECASTS

FINAL ESTIMATE



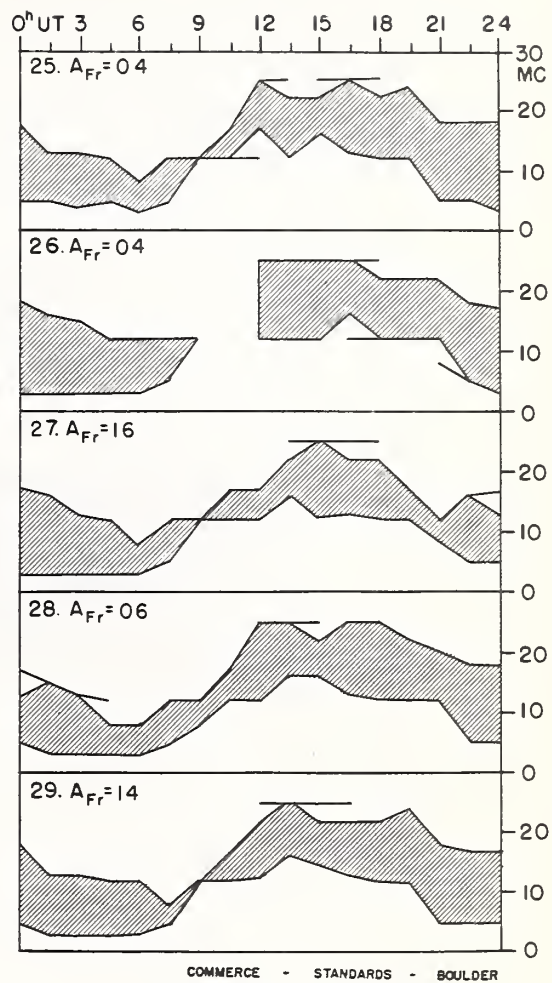
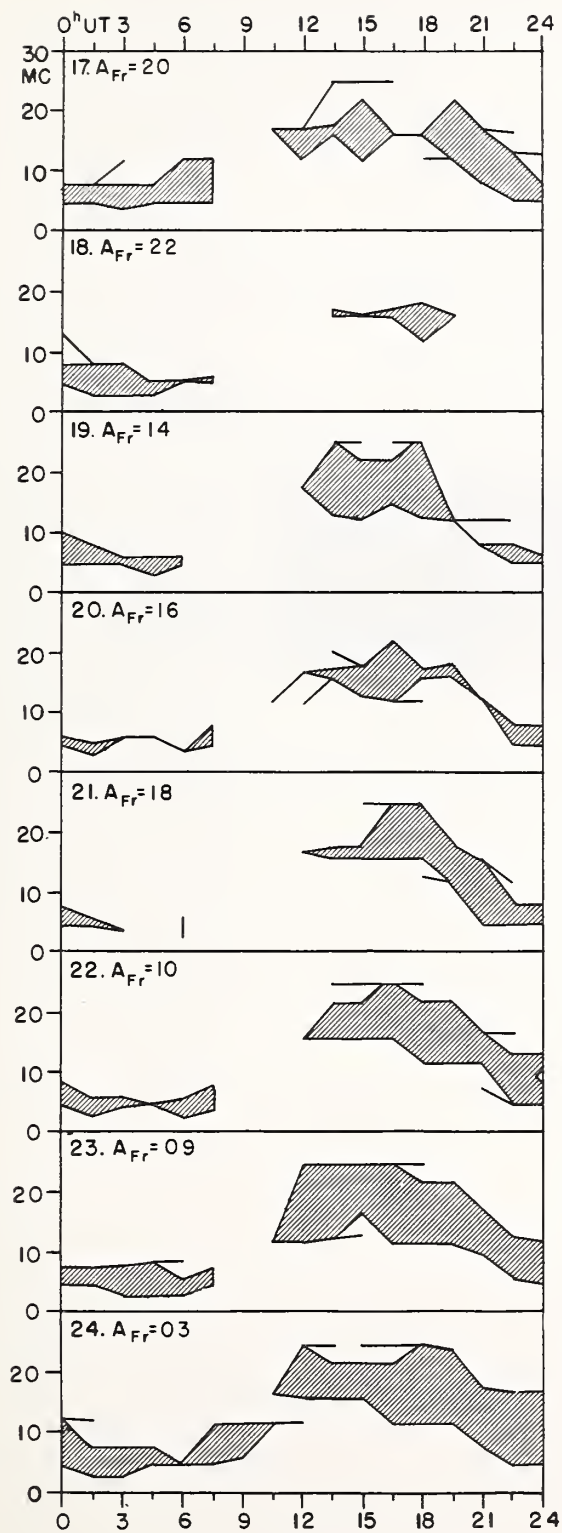
## USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1960



COMMERCE - STANDARDS - BOULDER





Adapted from Observations by Deutsches Bundespost

## CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

## NORTH PACIFIC

FEBRUARY 1960

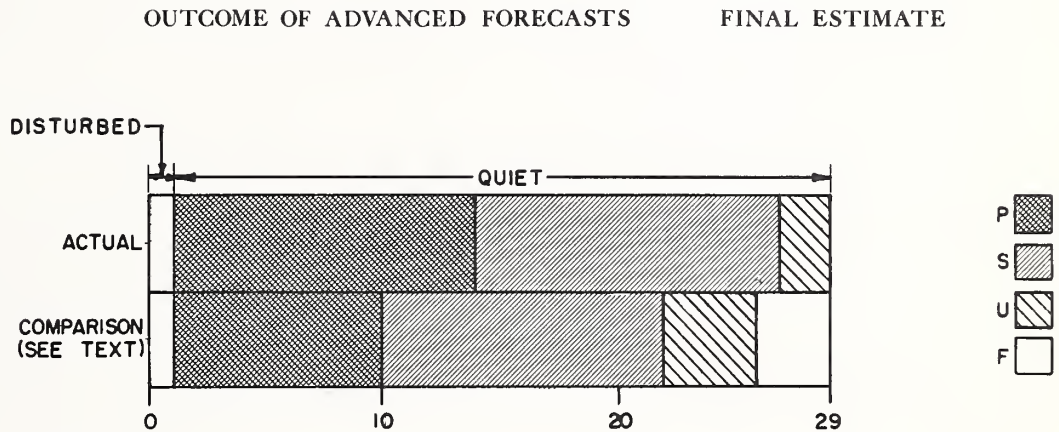
Feb. 1960	North Pacific 12-hourly quality figures		Short-term fore- casts issued at		Whole day index	Advance forecasts (Jp reports) for whole day; issued in advance by:				Geomag- netic K <sub>SI</sub>	
	0700 to 1900	1900 to 0700	0600	1800		1-7 days Final	1-7 days Jps	1-7 days SDW	1-7 days Jp	Half Day (1) (2)	
1	7	6	6	6	6	6			6	2	2
2	6	6	7	6	6	6			6	1	3
3	6	6	7	6	6	6			6	2	(4)
4	7	6	5	7	6	6			6	3	2
5	7	6	7	7	7	5			5	2	(4)
6	7	6	6	6	7	5			5	(4)	2
7	6	7	7	6	6	5			5	2	0
8	7	7	7	7	7	6			6	2	3
9	5	6	7	6	6	6			6	0	1
10	7	7	7	7	7	6			6	2	1
11	7	6	7	6	7	7			7	0	3
12	7	7	7	7	7	7			7	2	0
13	6	6	7	7	6	7			7	1	2
14	7	7	5	6	8	7			7	(5)	(4)
15	6	7	7	5	6	7			7	0	3
16	7	6	7	7	7	6			6	2	(4)
17	6	7	7	7	6	6			6	(4)	3
18	7	6	7	7	7	7			7	(4)	(4)
19	7	7	7	7	7	7			7	2	(4)
20	5	6	7	7	6	7			7	3	2
21	4	5	7	5	(4)	7			7	(4)	3
22	5	6	6	7	6	7			7	2	2
23	6	6	6	7	6	7			7	2	2
24	6	7	6	6	6	7			7	1	0
25	6	6	6	7	6	7			7	1	0
26	7	6	7	7	7	7			7	1	2
27	7	7	7	7	7	7			7	(4)	2
28	7	8	7	7	7	7			7	2	1
29	7	7	7	8	8	7			7	2	2
Score:		Quiet Periods	P 15	13		13					
			S 9	15		13					
			U 4	1		2					
			F 0	0		0					
		Disturbed Periods	P 0	0		0					
			S 0	0		0					
			U 0	0		0					
			F 1	0		1					

( ) represent disturbed values.

COMMERCE - STANDARDS - BOULDER

## NORTH PACIFIC

FEBRUARY 1960



COMMERCE - STANDARDS - BOULDER



## ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

MARCH 1960

Issued Day/Time UT Mar. 1960	Advance Geophysical Alert	No.	Worldwide Geophysical Alert	Special World Interval
16/0330	Fort Belvoir Magnetic Storm 15/21XXZ			
16/1600		52	Magnetic Storm 15/12XXZ	
31/1315	Fort Belvoir Magnetic Storm			
31/1600	Aurora Probable 31/08XXZ	53	Magnetic Storm 31/08XXZ	Start Special World Interval

COMMERCE - STANDARDS - BOULDER



